ARCHITECTVRE
THE PROFESSIONAL ARCHITECTURAL MONTHLY

VOL. XL OCTOBER, 1919 No. 4

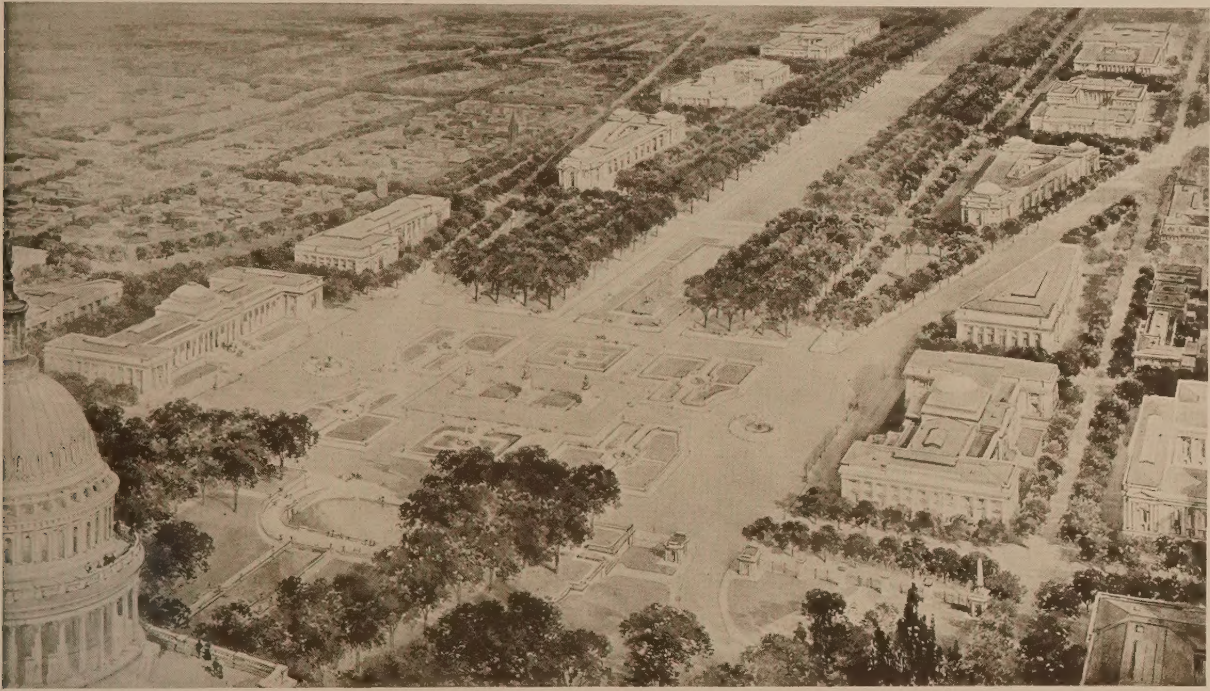
Theodore Roosevelt's Service to the National Capital

By Charles Moore

Chairman of the Commission of Fine Arts

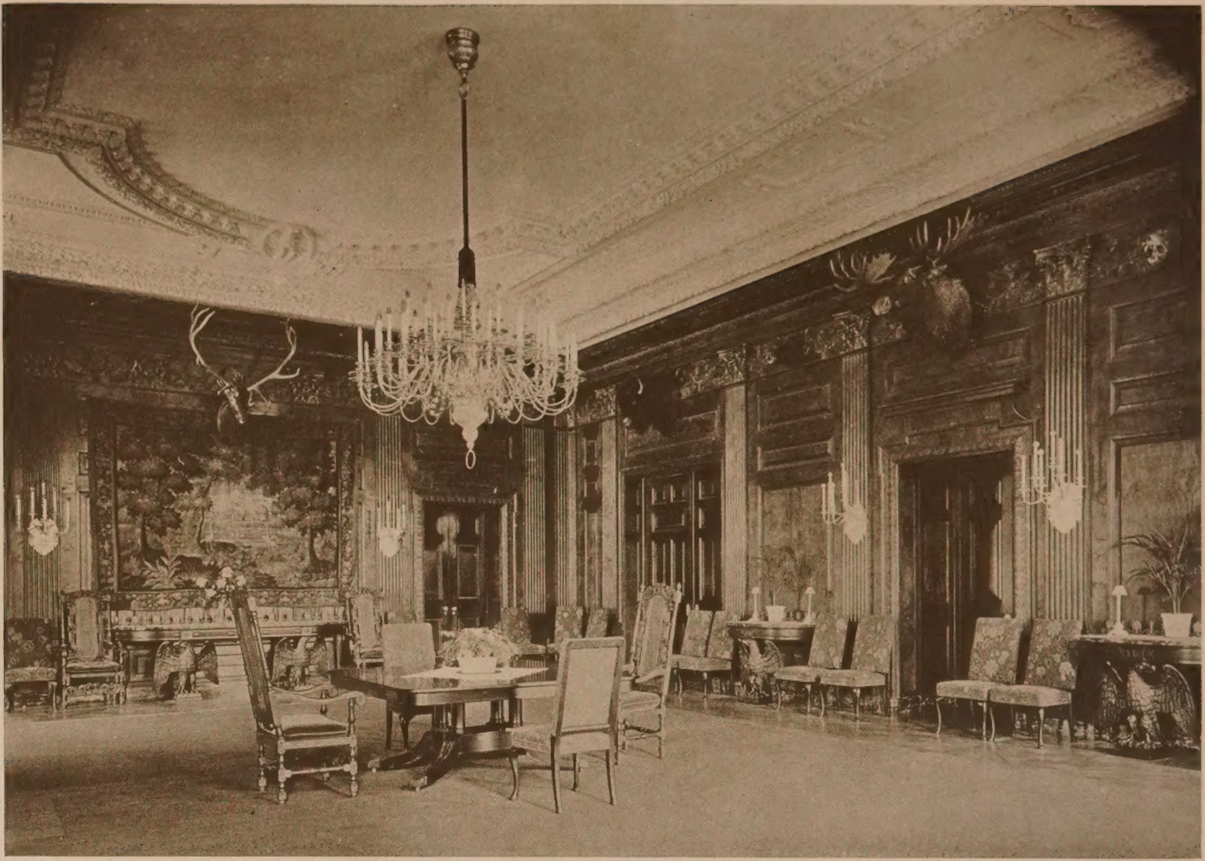
PRESIDENT ROOSEVELT, with the members of his Cabinet, attended the preliminary view of the Senate Park Commission Plans for the improvement of Washington, at the Corcoran Gallery, on January 15, 1902. The first object that caught his eye was a small model of the proposed treatment of the Washington Monument grounds, which he, with his usual impetuosity, declared to be fussy. Thereupon Senator McMillan took him to the large renderings in color, by Charles Graham and Jules Guerin, showing the entire Mall scheme from the Capitol to the Washington Monument, and thence to the Lincoln Memorial, explaining the original plan of L'Enfant and the continuation of it by Messrs. Burnham, McKim, Saint-Gaudens, and Olmsted. When he realized the full import of the great composition, involving the restoration of all those axial relations between Capitol, White House, and Monument, that had been devised under the immediate supervision of Washington and Jefferson, he became enthusiastic over the new plans.

The commission had begun its labors during the administration of President McKinley; and, although Vice-President Roosevelt was President of the Senate when that body authorized one of its committees to have plans prepared, he had no personal knowledge of the work being done until he visited the exhibition. Secretary Root, who had been one of the advisers of the commission, was in hearty accord with the new plans. Secretary Hay approved both the location and the tentative design of the Lincoln Memorial; in fact, placing Lincoln with Washington on the main axis of the composition he regarded as inevitable. Thus fortified by the approval of President Roosevelt and Secretaries Hay and Root, the commission felt that they would have the support of the executive branch of the government.



UNION SQUARE.

During the spring of 1902 the Senate passed the McMillan bill, which provided for removing from the Mall the Pennsylvania Railroad tracks and station. This legislation was imperative if the Park Commission plans were to be carried out. In August Senator McMillan died. The House completed the railroad legislation; and there the new plans came to a stop in so far as Congress was concerned. Senators Wetmore and Newlands became the defenders of the plans, and when Mr. Root entered the Senate the three fought some good fights, both in defense of the general scheme and in favor of particular projects; but the plan as a whole found no champion to make an aggressive fight. On the contrary, in both Houses opponents strongly assailed



RESTORATION OF THE STATE DINING HALL OF THE WHITE HOUSE. McKim, Mead & White, Architects.

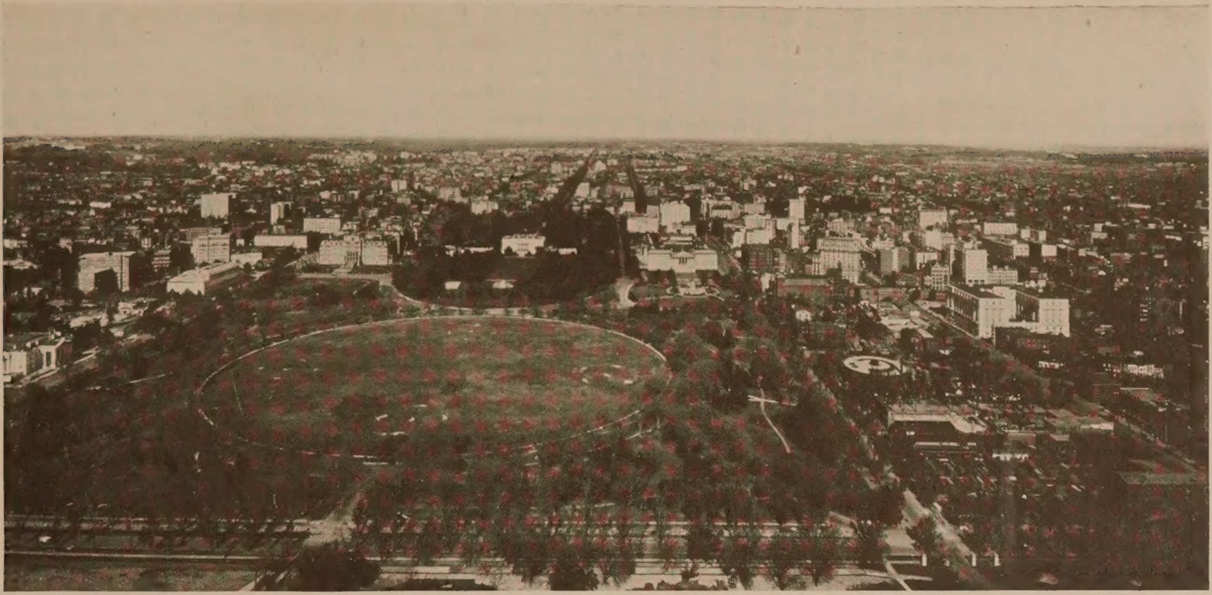
the members of the commission individually and the plan as well. But this is anticipating.

In the spring of 1902 Senator McMillan secured an appropriation for the thorough reconstruction of the White House, the work to be done entirely as President Roosevelt should direct. Mrs. Roosevelt had sent for Charles McKim to advise her about spending $16,000 on White House repairs. He told her frankly that, considering the condition of the building, the sum named would not make even a beginning. There the matter would have dropped had not Mr. McKim told Senator McMillan of the conversation. The same day the latter prevailed on the Senate Committee on Appropriations to insert an item of $100,000 for repairs, and a further sum for a temporary office building. Owing to Representative Cannon's insistence that the appropriation should be sufficient to put the White House in absolute order, the item was increased to nearly $500,000. The amount was based on estimates made by Mr. McKim and approved by President Roosevelt. During the period from May till December both President and Mrs. Roosevelt gave much time and thought to the restoration of the White House. The work was accomplished in such a manner as to preclude the necessity for change; the building was restored in form to what it was in the days of Thomas Jefferson, and the interior was finished and furnished in a permanent manner. Hangings and decoration have to be renewed from time to time, but any changes would be for the worse. "Fashion" and "style" have been eliminated. "I am a simple man," said President Roosevelt to Mr. McKim, "and I want simplicity in the White House. I don't want extravagance." "Certainly," was the answer, "but you must realize that simplicity is expensive. Pine can be sawed and gilded quite cheaply; but plain surfaces must be thoroughly made."

The fact that the White House is absolutely right is due to the perfect taste and knowledge of Charles McKim, but probably Mr. McKim would not have been selected—certainly his ideas would not have found full and complete realization—had it not been for the understanding and sympathy of the President and Mrs. Roosevelt. Both of them had been familiar with the best things—the suitable things—all their lives.

The former plans for the remodelling of the White House, presented in 1900, were prepared under the direction of an æsthetically minded mistress of the Executive Mansion. They were extravagant and destructive of historic values; they would have made the President's House (as the original name was) into a cross between a railway-station and an exposition building. The American Institute of Architects condemned them vigorously. But the real veto came when Mrs. McKinley told Senator Allison (chairman of the Committee on Appropriations) that "she didn't propose to have any hammering in the White House while she occupied it."

Every architect knows that his battle is won when the mind of the client meets his mind. That was what happened in the case of the Roosevelts and Mr. McKim. Of course there were times when the impulsive President came up against the architect, who stood ready to compromise anything but the essence; but that is another story. And, by the way, it was astonishing how little besides essence there was to compromise on with McKim!

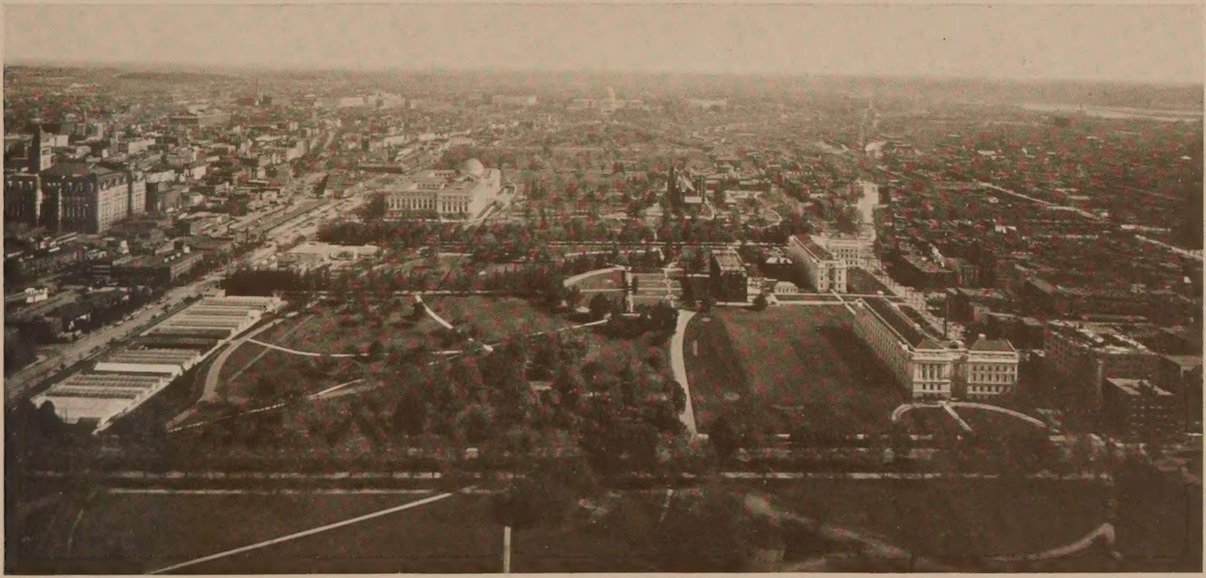


GENERAL VIEW OF WASHINGTON, LOOKING NORTH FROM THE WASHINGTON MONUMENT.

"I am living," said President Taft, in 1909, "in a house that has been made beautiful by Mr. McKim. It is a house to which you can invite any foreigner from any country, however artistic, and feel that it is a worthy executive mansion for a great nation like this, combining dignity and simplicity, and reflecting in all its lines (it does to me) the dignity and simplicity of the art of Mr. McKim."

Without subscribing to dicta of the average client that the good points of his house are due to his wife and the mistakes to his architect, but giving due credit to the genius of Mr. McKim, I still maintain that without such intelligent and appreciative clients as President and Mrs. Roosevelt the historic White House would not have been preserved. This statement is borne out by the McKim correspondence in my possession.

President Roosevelt's conspicuous service to Washington was rendered in preserving the Mall plan from wreck. The plans called for an open space of eight hundred feet between buildings on the north side of the Mall and those on the south side. This space was carefully calculated, after studying similar spaces at Versailles, Compiègne, Vaux-le-Viconte and Fontainebleau, in France, Schoenbrunn in Vienna, and Hatfield House in England. Provision for the four rows of elms and the driveways on either side of the *tapis vert* were carefully provided for. The plan contemplated the carrying out of L'Enfant's original design



The Mall, a garden approach to the Capitol from the White House, planned by Peter Charles L'Enfant (1791) under the direction of President Washington. The view is directly east from the Washington Monument. In the center is the Capitol, flanked on the right by the Office Building for the House of Representatives, and on the left by the Senate Office Building. Further to the left is the monumental Union Station, and the new Post Office. The Library of Congress appears beyond the Capitol. In the foreground, on the right, are the new wings of the Agricultural Department Building, on the left the new National Museum Building; both structures are located with reference to an axial line beginning at the Capitol, extending through the Washington Monument to the Lincoln Memorial.

for the Mall. It was for this that the railroads were taken from the Mall.

There were influences at work to break up the whole commission plan. An estimate of these influences will await the digging of a few more honored graves and the release of information not yet available. President Roosevelt was busy with other matters, and, in spite of all the efforts of Senators Newlands and Wetmore, Secretary Wilson's people located the new Agricultural Department Building so as to spoil the Mall composition. President Taft, at the McKim memorial meeting, told the story, with a fund of humor that more than makes up for some minor historical inaccuracies:

"The Mall was Mr. McKim's chief anxiety lest Congress should forget that important part of the plan for the improvement of Washington. The cellar and the foundation for the Agricultural Department Building had been begun, and some $8,000 or $10,000 expended, when it came to Mr. McKim's knowledge that the building, if erected according to that plan, would be a few feet too high and a few feet too near the centre, and he came to prevent it. The Secretary of Agriculture was not disposed to regard that variation from the plan as substantial, and was very much opposed to the change.

"Mr. McKim came to me, after Mr. Root left the Cabinet, as his only true sympathizer and friend, and asked me to speak to the President, whom he also regarded as a friend and sympathizer, but one who at times needed convincing. So I went to see the President and explained to him the situation, and he at once agreed that we ought to change it. 'But,' said he, 'the trouble is with Uncle Jimmy, who has a real cause of complaint. He says that these architects have delayed too long, and the public money cannot be wasted and expended in this way.'

"'Well,' said I, 'can't we call a council, or something of that sort, and solemnly sit on the subject, and then finally reach the right conclusion?'

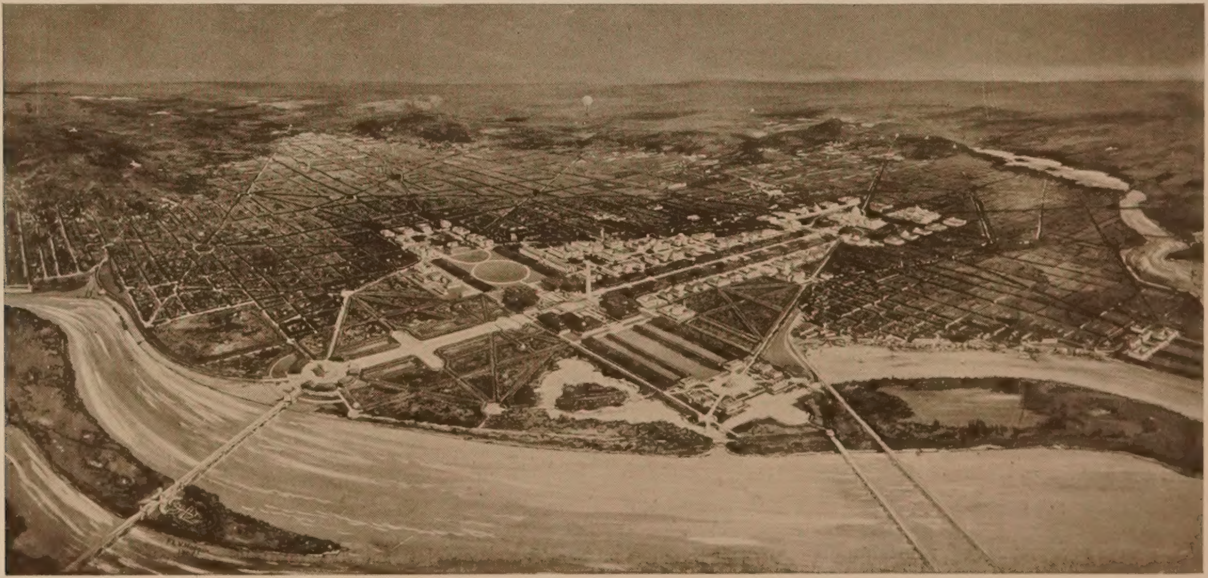
"He said, 'We can, and we will,' and we did. Mr. McKim was of counsel, and Mr. Green and two or three others. The President took Mr. McKim to task at once at the audacity of architects who wait thirty and sixty days, until plans have been completed, and then come in and attempt to make a change. Well, that was not a very good beginning, and I am afraid that our brother McKim thought the jig was up. But it so suited the Secretary of Agriculture that when there appeared a suggestion from an engineer that possibly not $10,000 or $5,000 would be sacrificed, but an economy might be introduced in another way, the Secretary, at the suggestion or the invitation of the President, said that he thought possibly it might be worked out that way, but the President insisted that if we did, we did not intend to waive the criticism that we had to make against the profession of architects by reason of their delay. And so we separated.

"The Agricultural Building was moved. McKim and I walked up the steps of the War Department. I said: 'Mr. McKim, I congratulate you on your victory.' He turned and looked at me a moment, and said: 'Was it a victory? Another such and I am dead.'"

"President Roosevelt," said Elihu Root, "needed to add nothing to the many reasons that I have for respect and affection for him, but he did add to both of those by the steadfastness and generous appreciation with which he stood by McKim in his strenuous efforts to prevent the park-system plan from being overslaughed and rendered impossible by subsequent inconsistent construction."

One picturesque and characteristic act of President Roosevelt perhaps was also vital to the carrying out of the plan of 1901. When the Pennsylvania Railroad retired from the Mall, the old Sixth Street station remained—the station in which President Garfield was murdered. The District National Guard wanted it for an armory, and various other uses were urged by the small economists. The President disposed of the matter by ordering the immediate and speedy demolition of the building. Before official Washington rubbed its eyes open, the big stick had done its work. No such high-handed proceeding had occurred since Boss Shepherd, having lured the District of Columbia judges to a clam-bake down the Potomac, had the North Liberties Market (on the site of the present Carnegie Library) torn down while those injunction-powers were beyond reach.

The "temporary" army and navy factory-office buildings, which intrude their huge and ugly bulk up to the very steps of the Lincoln Memorial, await the advent of another constructive destroyer.



VIEW OF THE MALL FROM ARLINGTON (PROPOSED PLAN).

Roosevelt Memorial Association

The Roosevelt Memorial Association has been formed to provide memorials in accordance with the plans of the National Committee, which will include the erection of a suitable and adequate monumental memorial in Washington; and acquiring, development, and maintenance of a park in the town of Oyster Bay which may ultimately, perhaps, include Sagamore Hill, to be preserved like Mount Vernon and Mr. Lincoln's home at Springfield.

In order to carry this programme to success, the Association will need a minimum of $5,000,000, and so that participation in the creation of this memorial fund may be general, it asks for subscriptions thereto from millions of individuals.

Colonel Roosevelt was the greatest American of his generation. He blazed the trail which this nation must travel. Unselfish and sincere in purpose, unswerving in seeking the right and following it, definite and direct in action, with his theory of personal responsibility for wrongdoing and his creed of "the square deal" for all, he gave a lifetime of devoted public service which must stand as an inspiration to the youth of this land for all time. Ardently American, believing profoundly that only through fullest acceptance of America's privileges and responsibilities could the people of this country realize their highest well-being and fulfil their obligations to themselves and to humanity, he set up ideals which it is not only a duty but a privilege to follow.

A memorial to this man will not so much honor him as honor America and the citizens who raise it to him. A contribution to the Roosevelt Memorial will be, in the highest sense, a pledge of devotion to ideal citizenship. Checks may be sent to Albert H. Wiggin, Treasurer, Roosevelt Memorial Association, 1 Madison Avenue, New York City.

William Boyce Thompson,
President, Roosevelt Memorial Association,
1 Madison Avenue, New York City.

There is Little Danger of Loss in Judicious Building Investment—High Rents Will Make Up for Increased Cost

The cost of construction is not high to-day. It is low compared with food, clothing, and commodities in general. It is high only in comparison with its own pre-war level. Commodity prices will undoubtedly recede because food and clothing and many other things were affected by special war conditions; for example, scarcity of transportaion, which prevented shipments from distant countries to the Allies. But they cannot fall to the pre-war level.

But, although some readjustments in the wages of individual trades and in the prices of individual classes of building materials may take place, the cost of construction will not come down to such an extent as to endanger a judicious investment made to-day in the erection of a new building. Where the rents offered will show a fair net return on the cost to-day of a new building after deducting a reasonable sinking-fund allowance, no one should hesitate to build or to lend money for building.

Rents are determined by supply and demand. In the case of housing, during the early part of the war, the demand was curtailed by the rapid advance in commodity prices, which impelled many tenants to crowd into or get along with less space than their normal standard of living required, and by the drafting of the young men of military age. With a year, however, these influences had spent their force. By the end of 1919, however, according to the replies obtained from a questionnaire sent to real-estate boards in ninety-one cities, only four of these cities had a housing demand that was below normal, while in fifty-two cities rents had advanced 10 per cent or more, in some instances 40 per cent to 50 per cent. This rise in rents took place at a time when the population at home was as economical of house-room as possible and while several millions of soldiers were absent in the service.

Book Reviews

The charm of old doorways is a pervasive one, and it would seem as if with the passing years and the destruction or transformation of many old houses that the charm becomes ever more insistent. To one who has an eye for observing there are architectural details of striking beauty and historic interest to be found not only in the cities of New England and the South, but as well along the country byways, in the little old towns that nestle among the hills or look out over the reaches of the Sound or the shores of the Atlantic from Maine to the Gulf.

In his book on "Old New England Doorways," Mr. Albert G. Robinson has included many off the beaten track of the collector. They are a mine of suggestion to the architect of to-day—especially when everything Colonial seems so much in favor. Of the men who built the old houses and relieved their plain fronts with these ornamental doorways the author says:

"The correspondence of designs in all of the States east of the Alleghanies, from Maine to South Carolina, argues a common origin. This is found in books on carpentry, published in England, notably, perhaps, those of which Batty Langley was the author. His books appeared at various times from 1726 to 1756. They were intended for the use of carpenters, and gave measured drawings of columns and pilasters, entablatures and architraves. From Langley and others, selections were made by the local builders who might follow the drawing with exactness, or might modify or vary the design to suit their own taste and judgment. Most of these men were masters of their craft and, moreover, were men of artistic sense. They knew the importance of proportions, and their work shows their close attention to that feature, vital in all good architecture. The leading architects of the present time can produce nothing, in doorways, superior to many of those produced by the master-artisans of the eighteenth century, and few give to the matter of proportions the careful attention that was given by the carpenter-builders of the seventeenth and the eighteenth centuries."

While Mr. Robinson does not go into technicalities, he deals with his subject in a way that will appeal to the architect, and the many excellent full-page plates bring out with sufficient clearness essential details.

Charles Scribner's Sons, Publishers.

We are in receipt of "Memoirs of the American Academy in Rome," Vol. II., a beautiful volume in its making, and in its contents a notable contribution to the high purposes and scholarly achievements that are associated with all of the academy's work.

We note again with the regret that we first learned of their deaths, the page "In Memoriam" of Jesse Benedict Carter, Director of the American School of Classical Studies in Rome, 1907–1912; Director of the American Academy in Rome, 1913–1917. Died July 20, 1917.

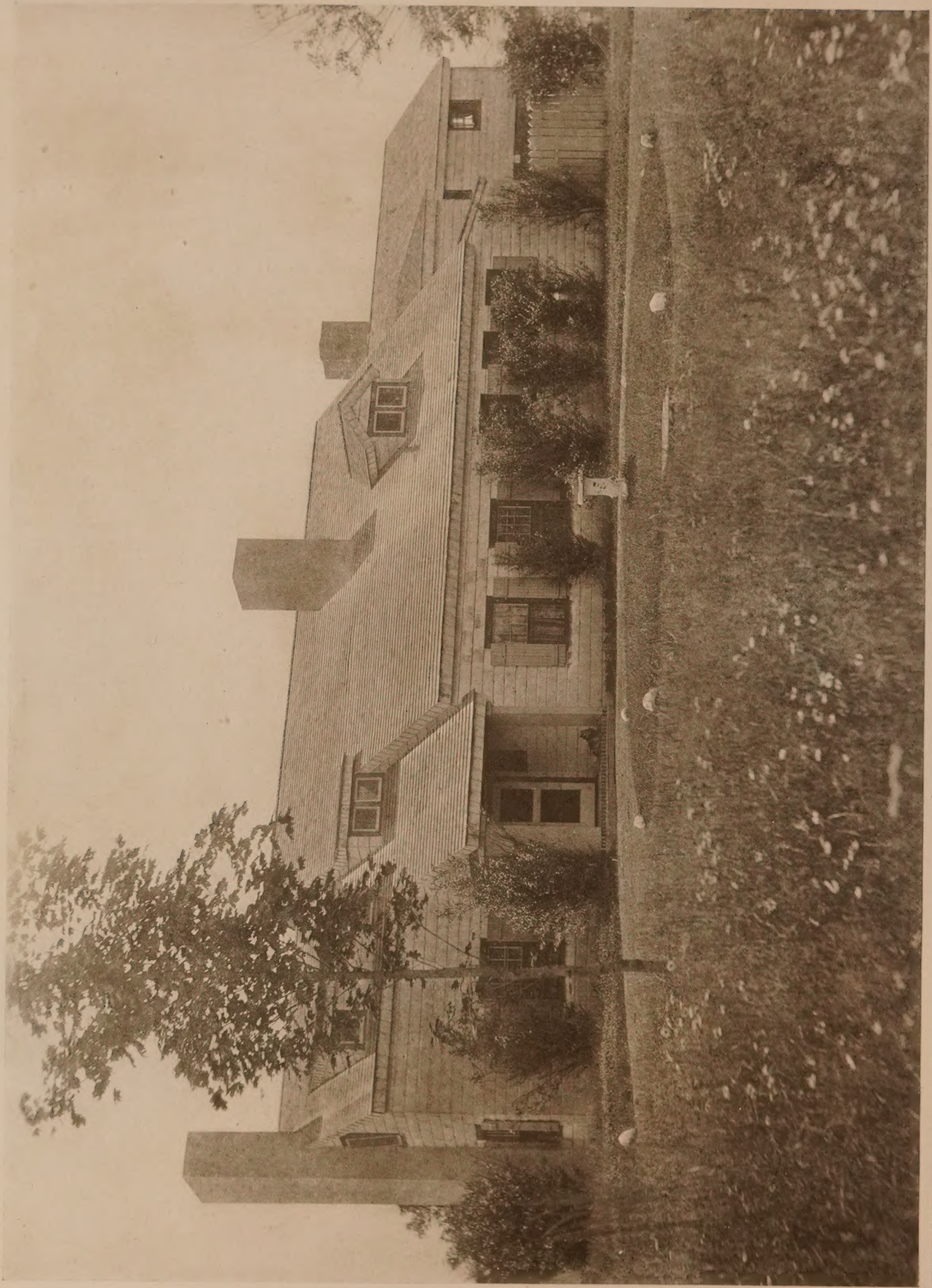
Frederic Crowninshield, Director of the American Academy in Rome, 1909–1911. Died September 11, 1918.

Richard Norton, Director of the American School of Classical Studies in Rome, 1899–1907. Died August 1, 1918.

The chapters and plates include "Recent Work of the School of Fine Arts," by Kenneth E. Carpenter, Walter L. Ward, William J. H. Hough, Philip T. Shutze, Edward G. Lawson, John Gregory, Leo Friedlander, Carl P. Jennewin, Henry I. Stickroth, Russell Cowles, and George Davidson.

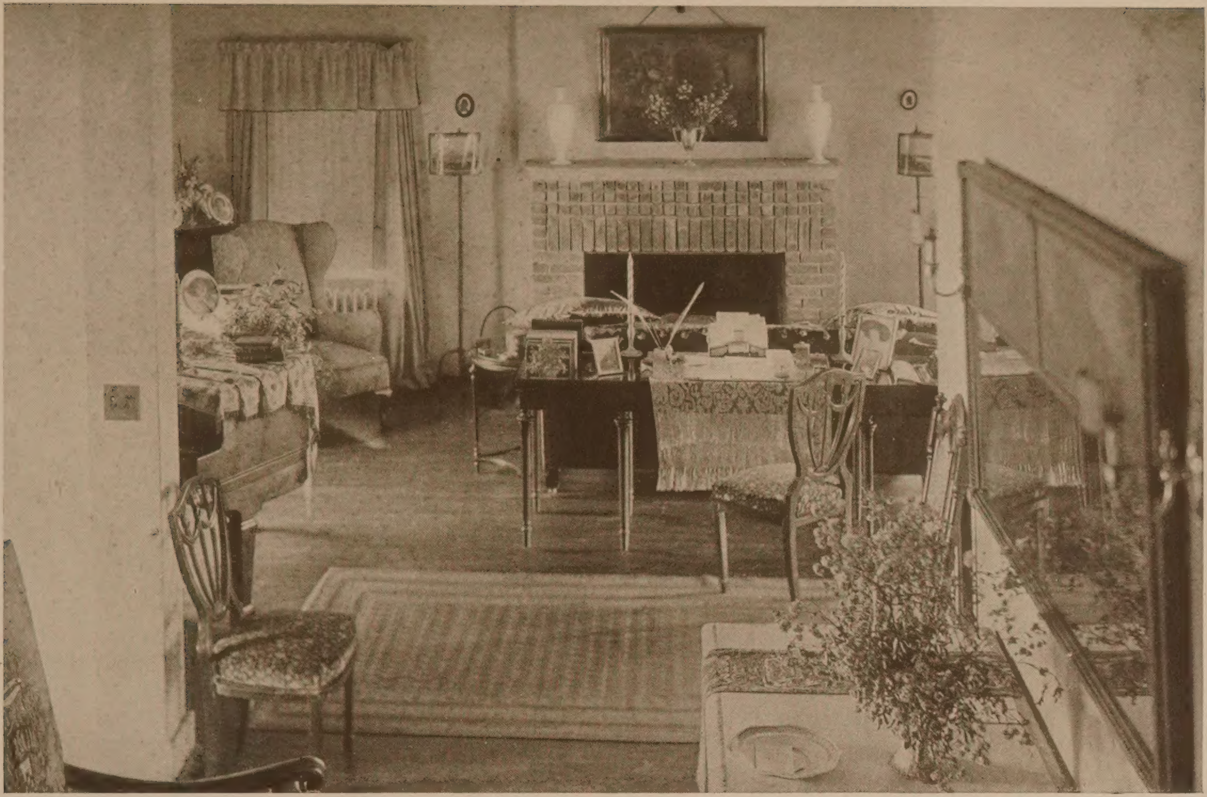
Other contributions are by E. Douglas Van Buren, "Terracotta Arulæ"; Lucy George Roberts, "The Gallic Fire and Roman Archives"; Albert William Van Buren, "Studies in the Archeology of the Forum at Pompeii"; Stanley Lothrop, "Pietro Cavalina."

Published by the University Press Association, 280 Madison Avenue, New York.

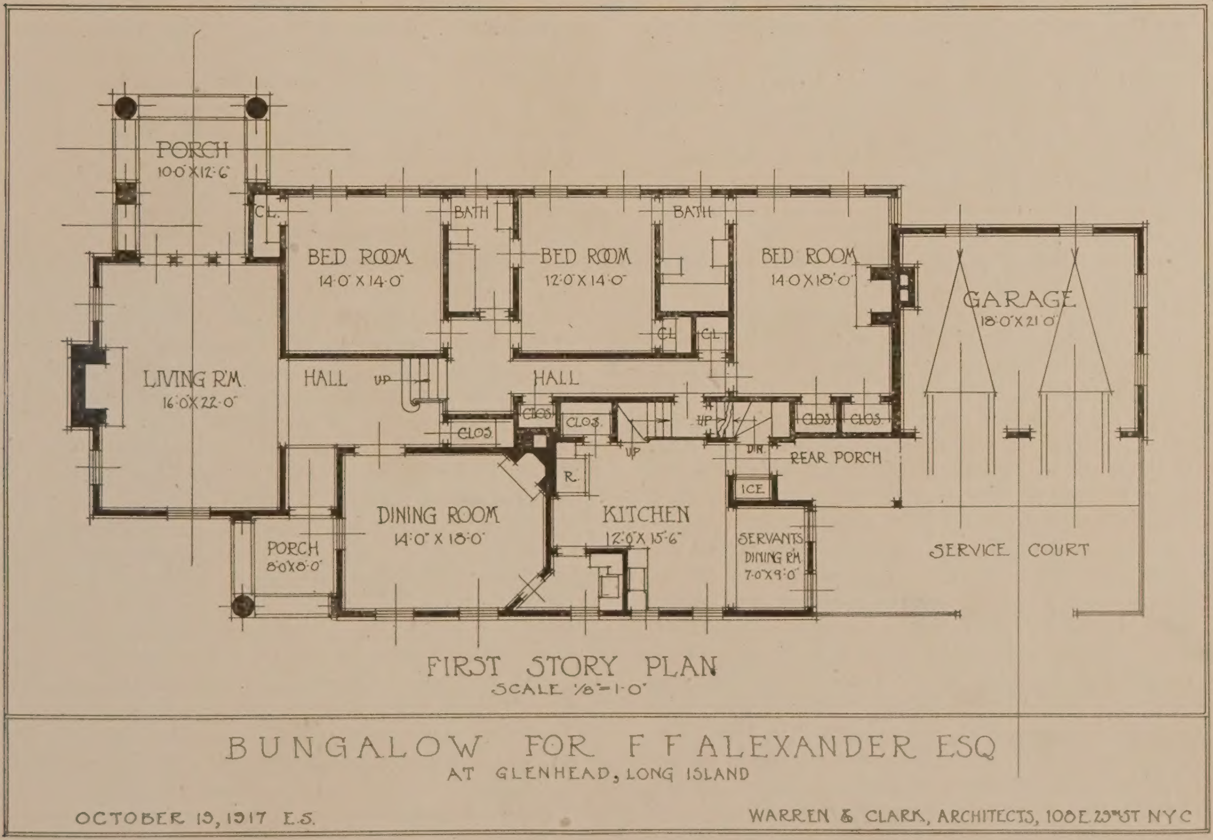


BUNGALOW FOR F. F. ALEXANDER, GLEN HEAD, L. I.

Warren & Clark, Architects.



FROM HALL TO LIVING ROOM.



A Possible Saving in Building Expense

By Richard P. Wallis

THE building industry of the country at large is not resuming operations at a pace sufficient to wipe out the deficit caused by the War. It was the general opinion that as soon as peace had been declared, there would be an immediate volume of building for all purposes that in extent would exceed the average of many years past. It was freely predicted that there would be a surplus of labor, that labor prices would fall and that material prices would be cheaper—inducements that would inevitably stimulate building operations. A survey of the past four months does not justify this earlier prophecy. We are now facing a labor shortage in all building lines, labor wages are going up in an effort to neutralize the higher cost of ordinary living. Reserve surplus of building material have been depleted, and no attempt made to replenish their reserve stock because of the many uncertainties confronting the manufacturer. Now when the demand is beginning to come, materials must be manufactured on a hand-to-mouth basis. This means uncertainty as to delivery and a consequent increase in cost to insure any sort of delivery.

These facts, together with the great demand to-day, contribute toward what the prospective builder must face, and that is higher building cost. This fact is greatly hindering the resumption in building work on a scale commensurate with its importance and necessity. Every effort should be made to discover a method that will tend to diminish this reluctance of the public to build.

In order to see what can be done to accomplish this end, let us investigate the present-day theory of the manufacturer and see if the lesson he has learned cannot be applied to this great manufacturing industry, the manufacturing of floor space.

The factory operator to-day aims to meet modern cost conditions by increasing his volume of business at a reduced cost of production. This is brought about through more efficient training of the operatives, labor-saving devices, increased efficiency in plant layout, increasing the use of his individual product by a campaign of advertising and developing new uses for his product.

There is a germ of thought in the experience of the manufacturer that can and should be applied to the manufacture of buildings, whether factories, public buildings or residences. Any method of building that will eliminate an unnecessary group of costs reduces the cost of the completed article, thereby making it possible to increase the volume of business which is the end we are after.

One very evident way of saving a considerable percentage of the cost of a building would be the elimination of the unearned profit made by the general contractor on the work of his various sub-contractors. The general contractor has in a sense become the clearing-house of building rather than the builder himself. He rarely combines within himself all of the trades necessary to turn out a completed building. Most likely in the past he has been a masonry contractor or a carpenter contractor who has taken over to himself the handling and the directing of the other trades incidental to building. Of course it will be said that this system has certain definite advantages and to a degree it is true. Centralized responsibility is one of the many lessons learned in the hard school of practical experience.

Assuming certain benefits accruing from this arrangement, let us examine the debit side of this arrangement and discuss the evils that have sprung up under this system. The purpose of this article is to suggest a building method that will eliminate unnecessary cost and yet insure a satisfied client. The first point to investigate is the profit that the owner must pay to the general contractor for the services of organizations other than his own. The general contractor does not supply the labor of the sub-contractor, he does not supply the material or the supervision of its installation. He merely acts as the broker that in a general way sees that each component part of the building is installed in harmony with every other part. In this service he is paid a profit on the work of other independent organizations. This separate organization or sub-contractor also has to have his profit or he would cease to be able to carry on his business. In this way the owner pays two profits, the first to the general contractor and the second to the sub-contractor. In addition to these two, the architect must receive his profit for his conceptions and welding together of the various ramifications of the arts and sciences necessary for the completion of the perfect building. This brings the total number of profits that must be paid by the owner up to three. In a sense all three are legitimate profits, but of the three the one most easily dispensed with is that of the general contractor. In other words, his profit on those items that compose a considerable portion of the completed cost of the building is the one earned with least amount of effort and responsibility.

The second point to consider is the relation existing between the general contractor and his subs. In theory the system is excellent, the subs reporting to the general contractor and receiving their payments from him and all working together in harmony, but in actual practice it does not work out as well. The general contractor under the present lump sum form of contract sometimes is forced to figure pretty closely. In order to do so he plays one of his estimating subs against the other, concealing from him the actual facts of the case. Sometimes he does this when the necessity of getting close figures is not necessary. In this manner he is able to deduct from the legitimate profit of the subs a little here and a little there, so that the sum total of these bits of profit amount to a considerable sum. Frequently it is the sub-contractor that pays the general contractor his profit on the entire job. Aside from the ethical aspect of this policy there is an unfortunate condition created in the carrying on of the work that militates against the interests of the owner.

A good many reputable sub-contractors refuse to bid on work at the invitation of the general contractor, but in case of so doing they must protect themselves against the possibility of such a line of action. This means a higher cost to the owner. The reluctance of the reputable sub-contractor to bid frequently leads to the employment of those not so scrupulous and there the trouble begins. In order to make a legitimate margin of profit the sub-contractor resorts to substitution, skimps his work unless closely watched, and tries in every way to cheapen his share of the work. This condition necessitates a closer inspection of the work by the architect, and invariably leads to a loss of friendship between owner, architect, general contractor and sub. In cases of this kind it is usually the owner that suffers the most, as he is the party most vitally concerned with the cost and quality of the work performed. But this condition reacts also on the other parties to the contract and an atmosphere of suspicion springs up between the parties whose best interests demand a harmonious co-operation for the benefit of their own fortunes.

The logical solution for a situation of this character is to make the designing architect or engineer responsible for the coherent prosecution of the work. Allow the architect to exercise those functions of co-ordination now delegated to the general contractor. The competent architect, and it is about him that we are speaking, is the logical party to see that the actual physical construction of the building is in accordance with the plans and specifications that he, himself, has drawn up. His is the office that has conceived and constructed the building on paper. Why should he not carry this function one step further and be responsible for the actual erection of the building. The building itself is the main object, the plans and specifications are merely implements of service.

The general contractor rarely sees the plans and specification until such time as he is invited to figure on them. He is not conversant with the ideas of the architect or owner, and he must, in order to intelligently perform his share of the operation, acquaint himself with all of the preliminary details. On the other hand, the architect has nursed the project from infancy, and is familiar with all its whims and fancies.

Under this arrangement the general contractor would be eliminated. The architect would be empowered under the terms of his contract with the owner to employ the subs directly. In this way he would be able to pick and choose among the men he has done business with in the past, and in whom he has implicit confidence based upon faithful and intelligent performance of previous work. In this manner the subcontractor, being insured of his legitimate margin of profit, would find no incentive for cheapening his share of the work, and even if this incentive should exist he would hesitate to take advantage of it, due to the fear of jeopardizing his position with the architect. The owner would benefit directly under an arrangement of this sort. His building would cost less, due to the elimination of a general contractor's fee, and he would be certain of satisfaction in his completed building, resting secure in the knowledge that he has received value in full measure for what he has paid for. Is this not a logical conclusion?

The profession of architecture would be benefited by an arrangement of this sort. It is only too true that among laymen the profession of architecture does not receive the credit that should be its due. Few realize the complexities that a practising architect meets with even in the design of a comparatively simple building enterprise. The architect must be a composite designer, engineer, business man, and executive. These functions render him capable of handling the intricate details of his trade, and as soon as he is seen by the public at large in the actual execution of his work, designing the building, arranging for and carrying on its erection, he will be given credit by the world for what he actually is, a business man as well as an artist. The agreement between the architect and the various sub-contractors should be on the basis of cost plus a fixed fee. The advantages of such a system are numerous. Each sub should estimate his share of the work, submitting to the architect his upset price. If the cost of installation runs over this price the contractor should pay it out of his own pocket, but if there is a saving effected the contractor splits it with the owner. This is a decided incentive for the contractor to do his work as economically as possible. His profit is assured and there is, therefore, no reason that he should attempt to install inferior materials in an unworkmanlike manner. His personal and business relations with the architect demand the very best that he can give and the owner benefits thereby.

As a matter of fact the owner benefits from every step of the method outlined above. His costs are reduced and he is guaranteed a satisfactory job. The architect, increasing his functions, comes into his own, and the various contractors are insured a square deal. It would seem that everybody connected with the erection of a building would be benefited by such an arrangement. We would have more buildings at a lower cost and the demand of the present would be met, which is the end we are seeking.

Lumber Salvage in France

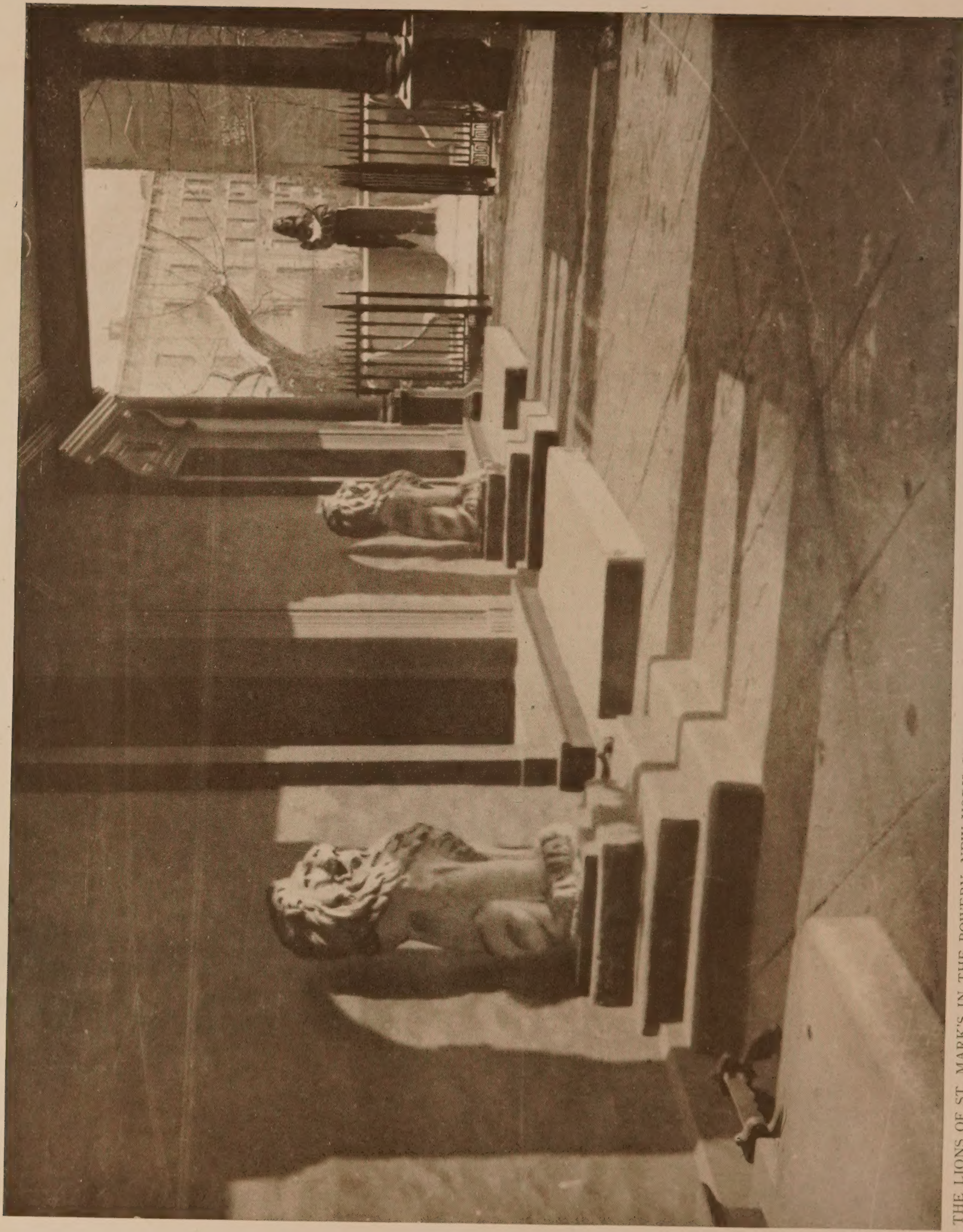
A little wood goes a long way in a French house, writes the *American Lumberman* representative from France, and the large amount of wood that will be salvaged from the devastated cities will probably result in a smaller demand for American building lumber for reconstruction than was at first expected.

Although cities and towns are in ruins in the war regions, they are not pulverized, and in most of them there is enough building material fit for salvage to rebuild a fair percentage of the houses. The steel is nearly always so badly twisted as to need remelting, but there is a great amount of lumber in the form of floor and roof beams, door planks, etc., that is still in excellent shape. Some which has been partly splintered may be resawed.

There is also, according to the same authority, a large amount of trench lumber; in fact, in the Allied and German trenches, dugouts, and other military works, "billions of feet of lumber and timbers that will be used again." Practically every permanent dugout has walls and roof and often floor of thick boards and planks, the whole braced with enormous timbers. All along the Hindenburg line, and for miles in the rear of both opposing positions, are great quantities of wood in the dugouts, trenches, and artillery positions. Most of this wood is in fine condition, and all can be used extensively in rebuilding homes, and even cities.

The French peasants have been most careful in salvaging their forests also, the sound trees and those whose wounds will heal being left standing, the hopelessly broken trees being cut for lumber, and the rest, branches and all, being neatly piled for cord-wood. Even the leaves are gathered up for fuel.

American lumber interests should keep in touch with the French situation, even though there is now not much demand for building lumber. A demand will be sure to develop later.



THE LIONS OF ST. MARK'S IN THE BOWERY, NEW YORK CITY.

From a photograph by J. B. Carrington.

Editorial and Other Comment

Still Marking Time

RECENT talks with architects from various parts of the country confirm the general opinion that there is still reason for marking time but with every prospect of an early order to go forward. The uncertainties with regard to prices are in evidence to such an extent as to prevent the making of contracts for any large developments. Many offices are working overtime getting ready for prospective building, but there is little real encouragement until present industrial conditions become more stable. There is a marked advance in home building, however, and hardly a suburb but shows many new buildings going up. Even with all that can be done in this field there will be a dire shortage of places for people to live. It is in the great centres, the cities, where the need is greatest and where there seems the least prospect of meeting the demand. There seems to be no trouble in securing money to build the high-class expensive apartment house, but the greatest need is for those of moderate rental. While there has been a very considerable number of alterations of old buildings, of remaking of the old type of city house into small studio apartments, many well-laid plans that promised relief have been held up by local tenement laws. It would seem as if some latitude might be granted architects in these times, when the exigency of living has become so sharp. Far be it from us to advocate any less careful protection from fire risks or any reversion to old methods of overcrowding and indifferent consideration of the right amount of air and light, but may there not be revisions made to meet new conditions that will yet fill all necessary requirements. Certainly it would be well to take these matters under consideration, with a view to solving the problem of using to the best possible advantage existing buildings capable of satisfactory alteration.

In California

FROM *The Building Review*, published in San Francisco, we learn that conditions on the coast parallel those in the East. Their problem seems to be not only to meet the needs of the native sons but the ever-growing migrant population more or less transient, from the East, seekers after a milder winter climate and a less congested population.

"The renting departments of real-estate offices are figuratively throwing up their hands and calling 'Kamerad'! at present, on both sides of San Francisco Bay. And although there is some increase in the construction of new housing accommodations, it is by no means adequate to satisfy the demand, which continues to increase daily. A prominent San Franciscan, formerly connected with one of the most successful local real-estate firms, who recently returned from the East after a long period of Government service, expresses his firm belief that there will be a remarkable growth in population here. 'The eyes of the East are on California,' he says, 'and all over the country people who are dissatisfied with climatic and living conditions are planning to move their families to this State.'

"The present high cost of new construction is preventing much work from going ahead, to meet this situation. But there is an alternative possibility which has received little or no consideration, and which from an economic standpoint has great advantages. Throughout the city are numbers of old houses, many of them better built than more recent work, which are too large for the average family, and which would lend themselves easily to remodelling. For a comparatively small expenditure, such a house can be converted into a modernized, sanitary, attractive two or three flat building, or in some cases into a small apartment house. Probably several thousand extra families could be accommodated in this way, in a space of time and at an outlay of money very much less than a corresponding amount of new building would entail.

"The conservation of present resources is not only economically advisable; it is practically a necessity under the existing conditions of assets and liabilities throughout the world. In utilizing old structures wherever possible in the increasing of housing facilities several objects are attained. The value of the old property is increased, and its life prolonged. The use of available space is doubled or more, and in a compact and still growing city this is distinctly important. The service of all public utilities is increased without any added cost for furnishing such service. The drain upon material and labor is so comparatively small that the normal development of new building should not be seriously affected. The demands upon financial institutions would in many cases become the putting of old loans on a sound commercial basis and in all cases, with the ever-growing demand, would be well secured, provided the work be done legitimately and wisely.

"That, of course, is the necessary proviso. Even more than new construction, remodelling should receive the careful attention of an expert. There are problems, æsthetic and practical, which arise in such work and upon the satisfactory solving of which depends the real value of the undertaking. And there is perhaps more real creative triumph when such difficulties have been overcome than when obstacles exist only in the mind or on paper."

As to Competitions

THERE is some interesting and suggestive comment in the September number of the *Journal of the Institute* apropos of the new State capitol of Nebraska. It begins with the old question of competitions, one that has been a discussion of long standing, and one that probably never will be decided satisfactorily to all concerned. In the first place there seems to be something innately repellent to many in the very thought of any competition, and we need not dwell upon the fact, too often proved, that the results are often powerfully disillusioning. In these public affairs there is always the pull of local talent, of local dilletantism, of local politics, and the personal equation cannot be eliminated from any public effort.

"Why not have the programme for the competition confined to architects who are known to be able to design and build it—and surely no others would be invited—and instead of asking for a set of drawings, ask for a thesis upon what a capitol should be and how it could be made to serve the great purpose of helping to build a finer state?"

By all means in all such matters let us confine the programme to those able to design and build it, and would there were some infallible way of arriving at such a choice. We should like to be present and see the impression that might be made by the reading of a thesis to any local town board or committee appointed to make a choice of architects. Few have the artist's vision, the gift of creation and imagination, and what a pity it is that so often though the architect "can use them somewhat in the design and plan, he is, after all, bound by a conception that is not his own, by the rules of cubage, and, worse than that, he is also bound to respect the known predilections of the jury. He cannot design in opposition to the kind of building he knows will win their approval."

"One could write an elaborate thesis on the subject of how a State capitol should be made an effective symbol of citizenship and a great lesson in art at the same time, but that is the function of the architect who is to design it. If he lacks that conception, then the building will never possess those qualities, but will remain still and cold and lifeless. The cornerstone will be laid with a ceremony, and there will be speeches at the dedication. After that there will be boastfulness and pride, but no understanding."

It is in no carping mood that we refer to this matter of competition. We are glad to join in the hope and plea for a finer idealism and only wish that we could believe that the times were right.

"That men may rise on stepping-stones
Of their dead selves to higher things."

America Is the Rightful Heir to All Architectural Styles

"Beauty is an architect's aim and beauty is a quality that knows neither race nor nation. The Cretan copied Egypt, the Hellene copied the Cretan, the Roman copied the Greek, the Renaissance copied the Roman, the modern architect copies them all. Greatness or badness in architecture depend not on the question of originality as against copying, but upon the success or failure of an architect to build beautifully, to solve some concrete problem in harmony with conditions, with materials, and with the ideals of contemporary culture.

"Our architects must, therefore, adopt the forms of past styles for our own use, as long as our American civilization is what it is to-day. Our architecture must be based on the architecture of the past as long as our culture is based on the culture of the past, and the forms that the architects copy and adopt will inevitably be forms developed by those people on whose achievements our culture is based. Just as every great national architecture has arisen through years of slow development, never blinding itself to the past, yet never losing in reverence for the past the call of new problems and new human needs to be met, so must American architecture arise; so it is arising before our eyes. Our architects are not using Roman orders or Gothic arches because they are too inefficient to design new forms; but because the forms they adopt are beautiful, and have been so judged for centuries. With our history and our make-up we can rightly claim any of the European styles as our own, because we are able to understand it. More than any other country of the world to-day the United States is heir to all styles, and all cultures, and just as Greek philosophy and Roman law, and feudalism, and Renaissance individualism, and the rationalism of the eighteenth century have all contributed to our institutions—our law, our education, our religion, our political economy—so our architecture must needs be based on the architecture that all these different peoples have developed."

From "The Enjoyment of Architecture," by Talbot F. Hamlin.

Art for Art's Sake vs. Business

"Did you ever stop to think, indulgent reader, that all the great architecture of the past—temples, cathedrals, public buildings—was not built as an investment to earn dividends? These architectural shrines at which we now worship did not represent so many shares of stock, the holders of which demanded a regular yearly dividend. They represented something else. They represented not an investment, but an expenditure—money thrown away, if you like—because those buildings represented the contributions of men who asked for no dividends except the enrichment of their spiritual lives. On the contrary, almost all modern building represents an investment which has to earn money. Between that kind of building and the temples of Greece or the cathedrals of France lies a great chasm. In that chasm we have buried the thing which once made architecture real. To-day we build for investment, we build for dividends, we build for profits, we build for earnings. Even our great public buildings are financed, usually, by bond issues, so that when a building is ultimately paid for it is likely to have been paid for twice. By this process we eventually spend twice as much money as for a building that should be paid for as the cathedrals were paid for, but there is a vast difference in the spirit of our squandering."

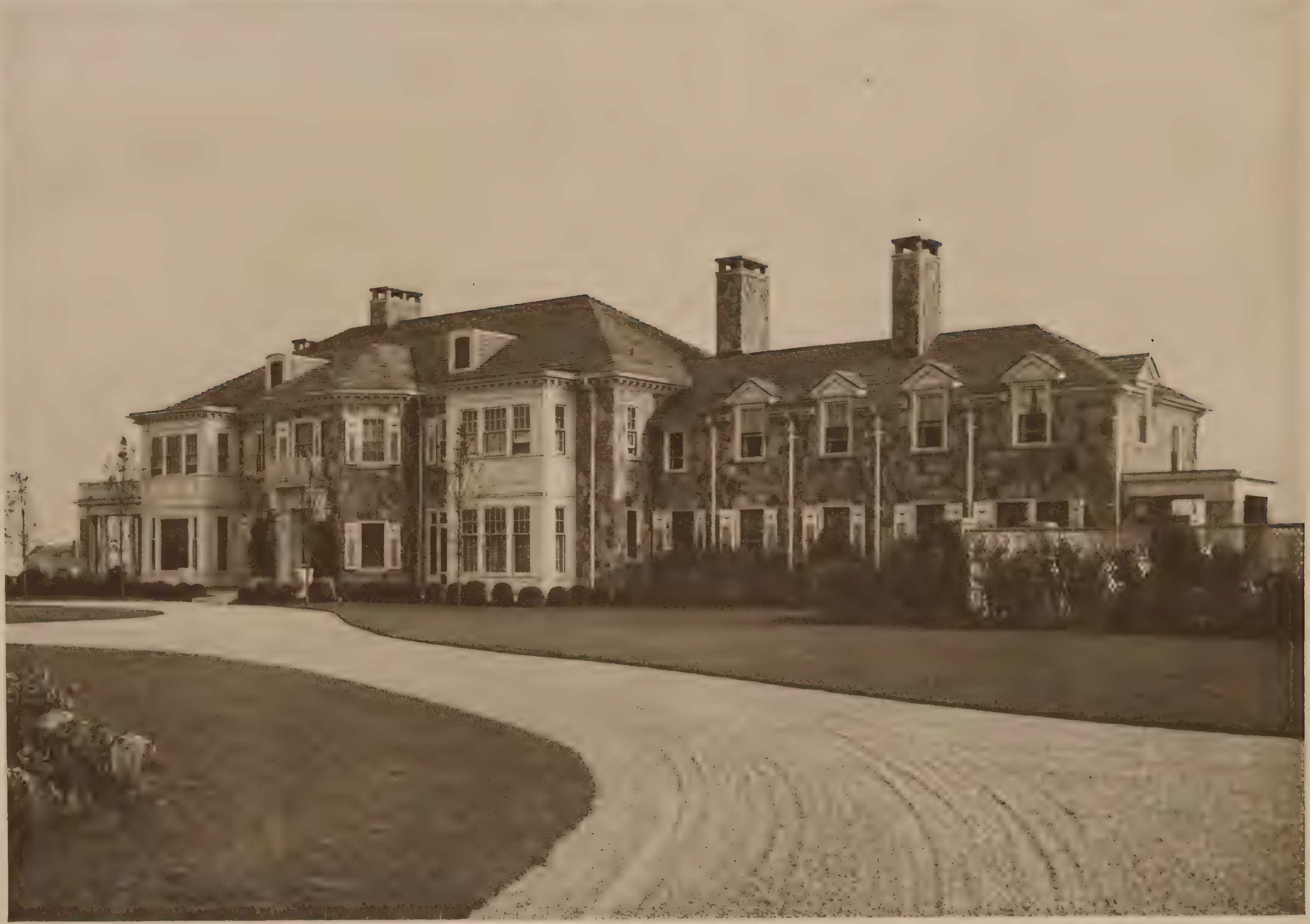
Artistic Ideals Observed in Home Building

CAMPAIGN REVEALS THAT AMERICA IS AWAKE TO THE BEST POSSIBILITIES OF CONSTRUCTION

IN the own your own home campaign the United States Department of Labor has received abundant assurance of a widespread interest in the artistic side of building. Wherever cities have conducted organized work to stimulate the construction of houses, evidence has been abundant that interest in beauty as well as utility governs the work of providing shelter for growing populations.

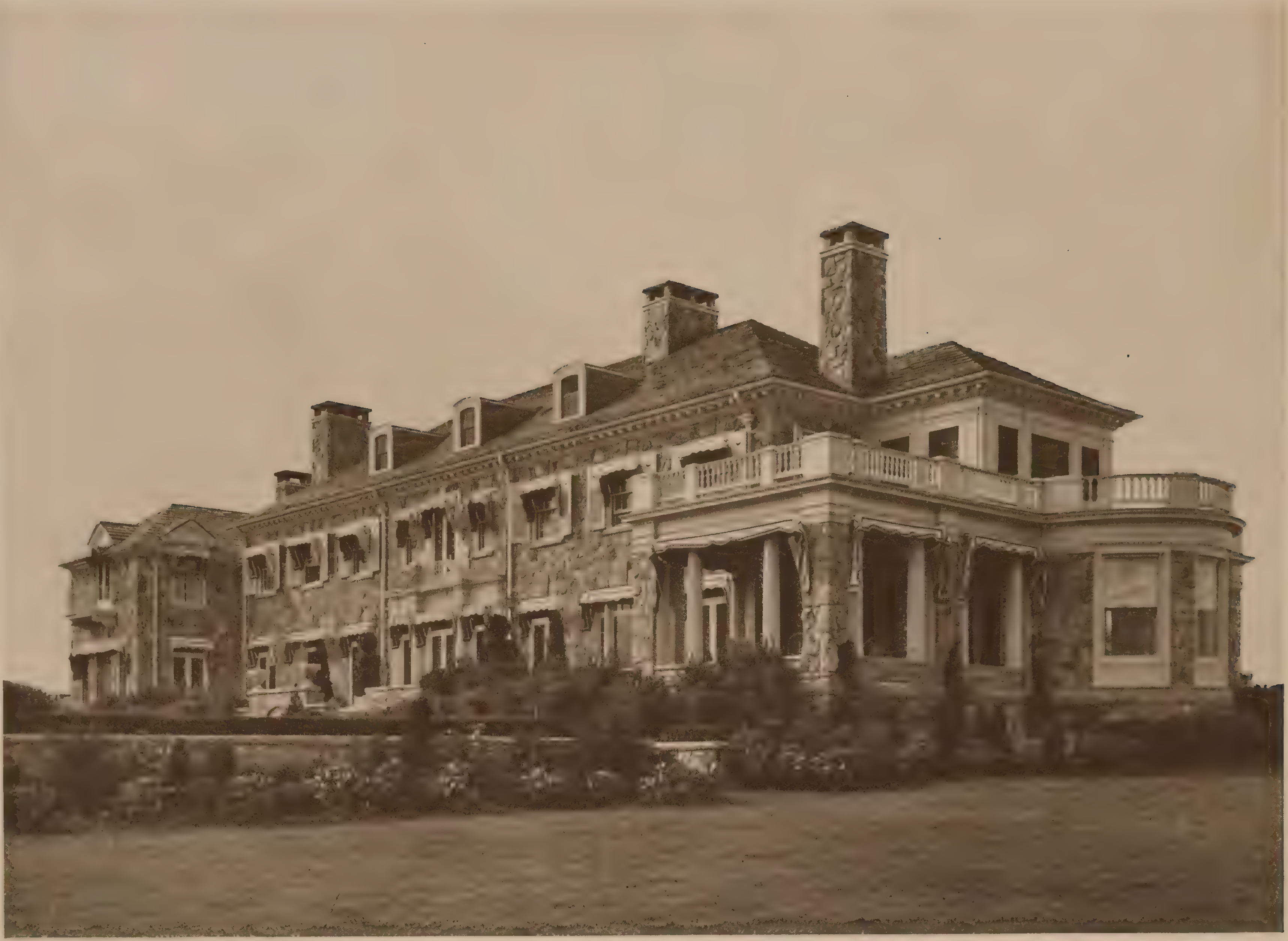
While the plan of the American Federation of Arts to make a tour of the country for the purpose of improving the public taste by the exhibition of pictures and statuary is praiseworthy, the application of art to everyday affairs must be made concrete, it is pointed out, if it is to have a speedy effect. For this reason exhibitions of wall paper, rugs, curtains, artistic in design, have been provided in connection with a number of the local campaigns. Models showing varieties in architecture and grouping of houses, with a view to best general effect, also have been shown.

Landscape architecture has its part in the plans projected in most cities. The development of the garden as part of the home idea is extended to its community relationship wherever possible so that in the wholesale home-building cities beautiful may be assured.



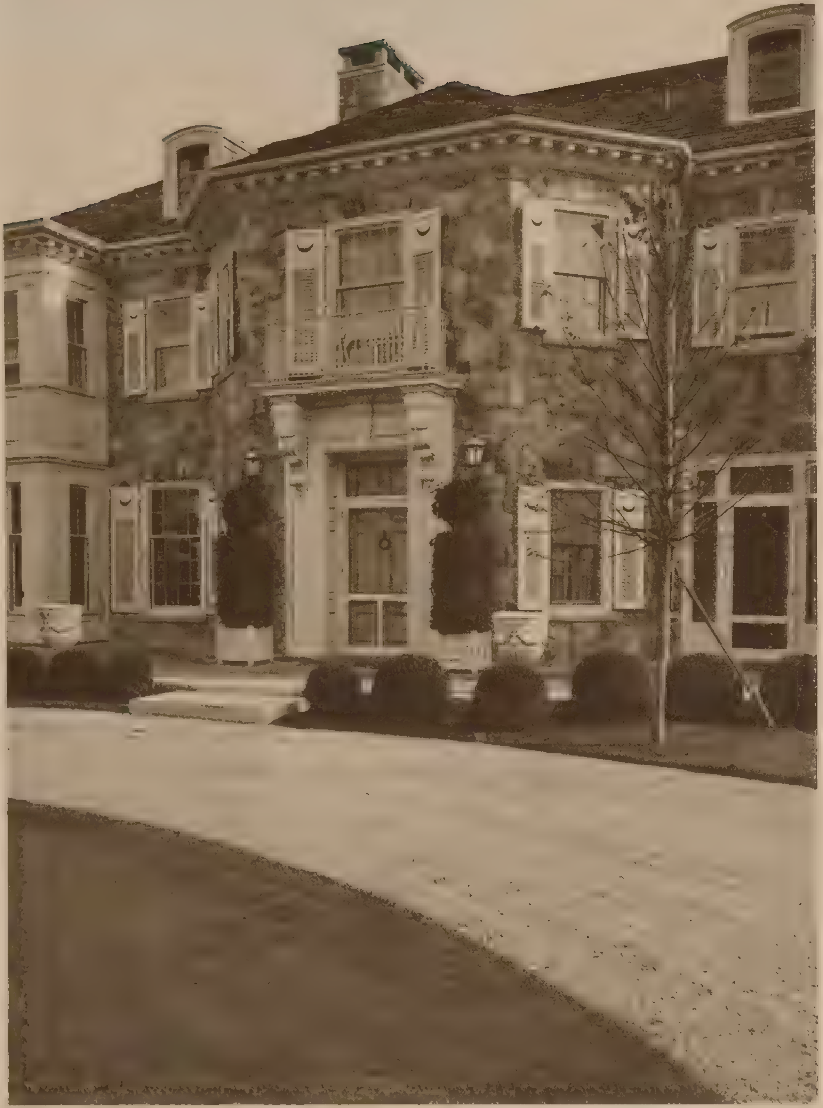
MAIN FRONT, RESIDENCE, EARLE P. CHARLTON, WESTPORT HARBOR, MASS.

Parker Morse Hooper, Architect; Frank C. Farley, Associated.

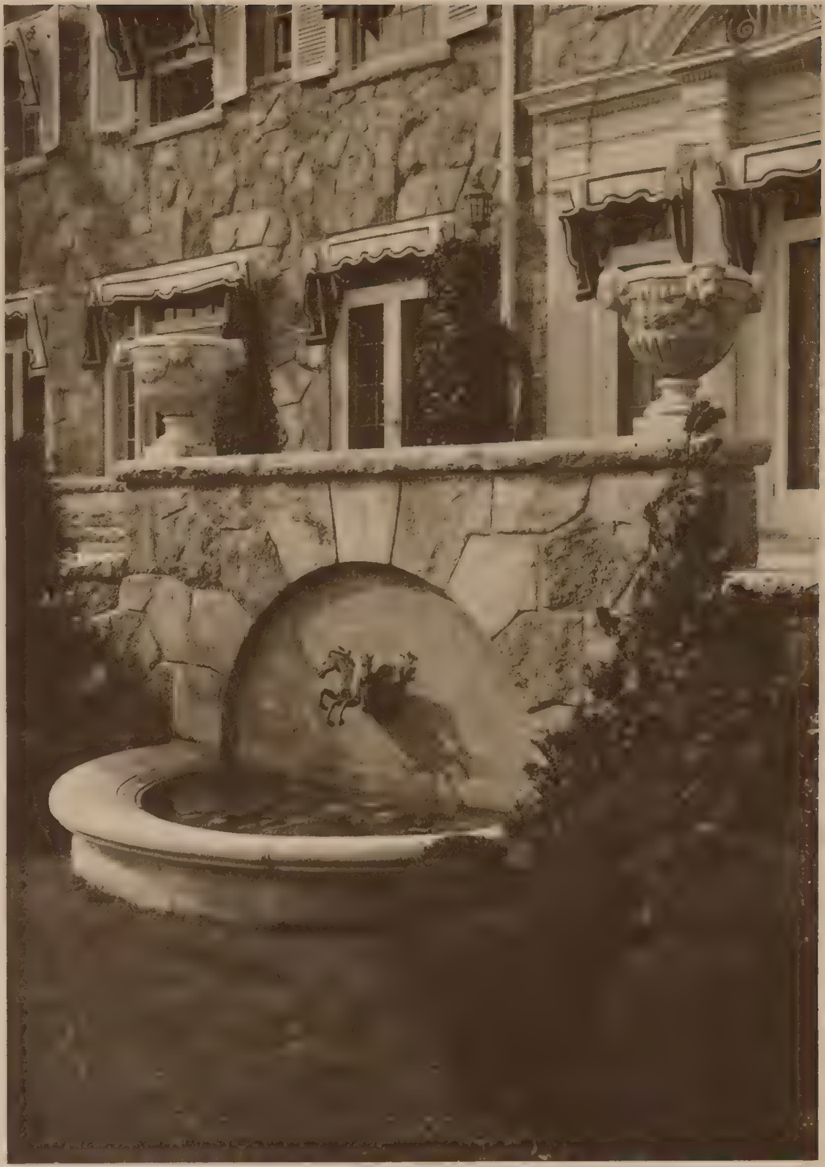


GARDEN FRONT, RESIDENCE, EARLE P. CHARLTON, WESTPORT HARBOR, MASS.

Parker Morse Hooper, Architect; Frank C. Farley, Associated.

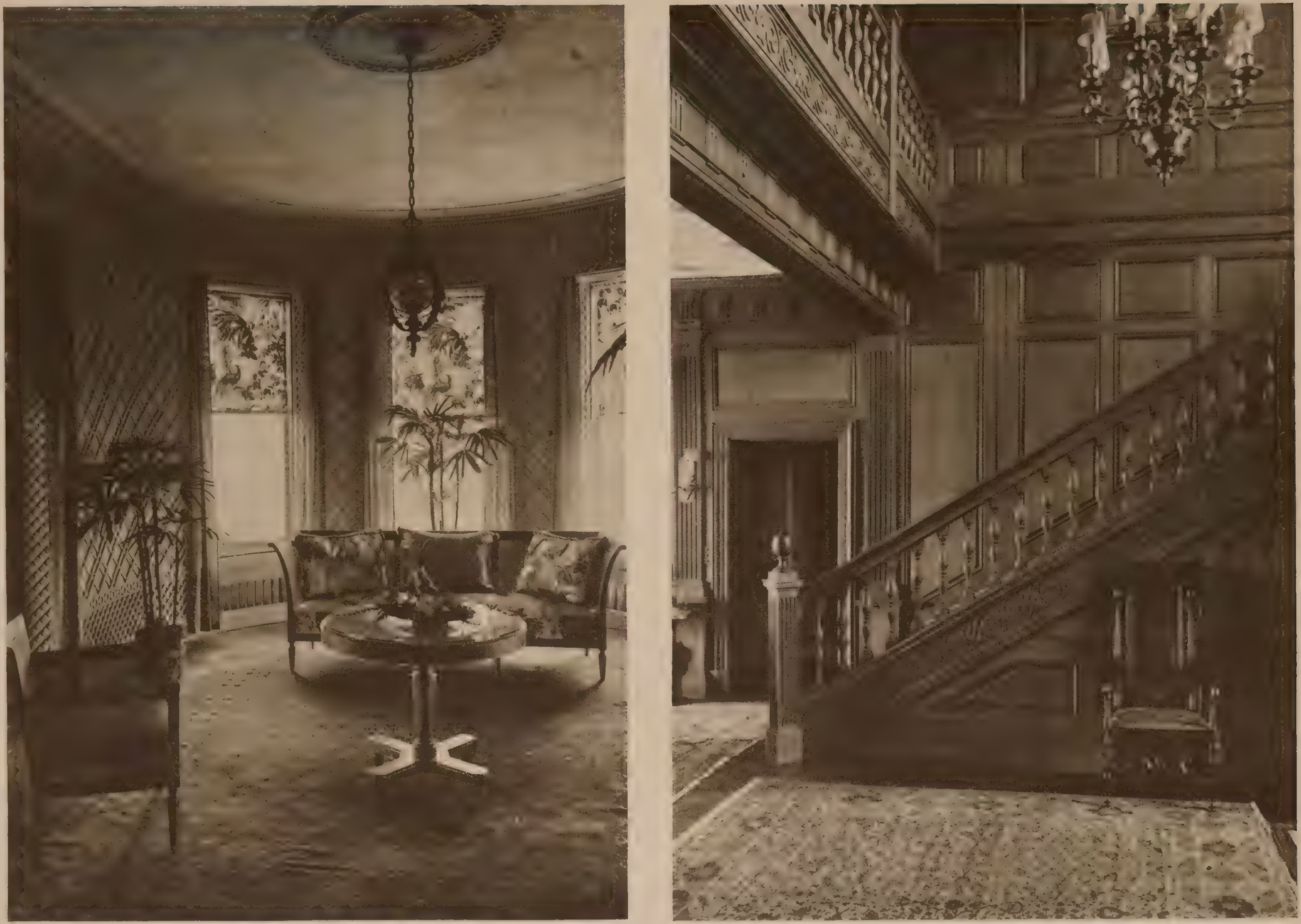


MAIN ENTRANCE.



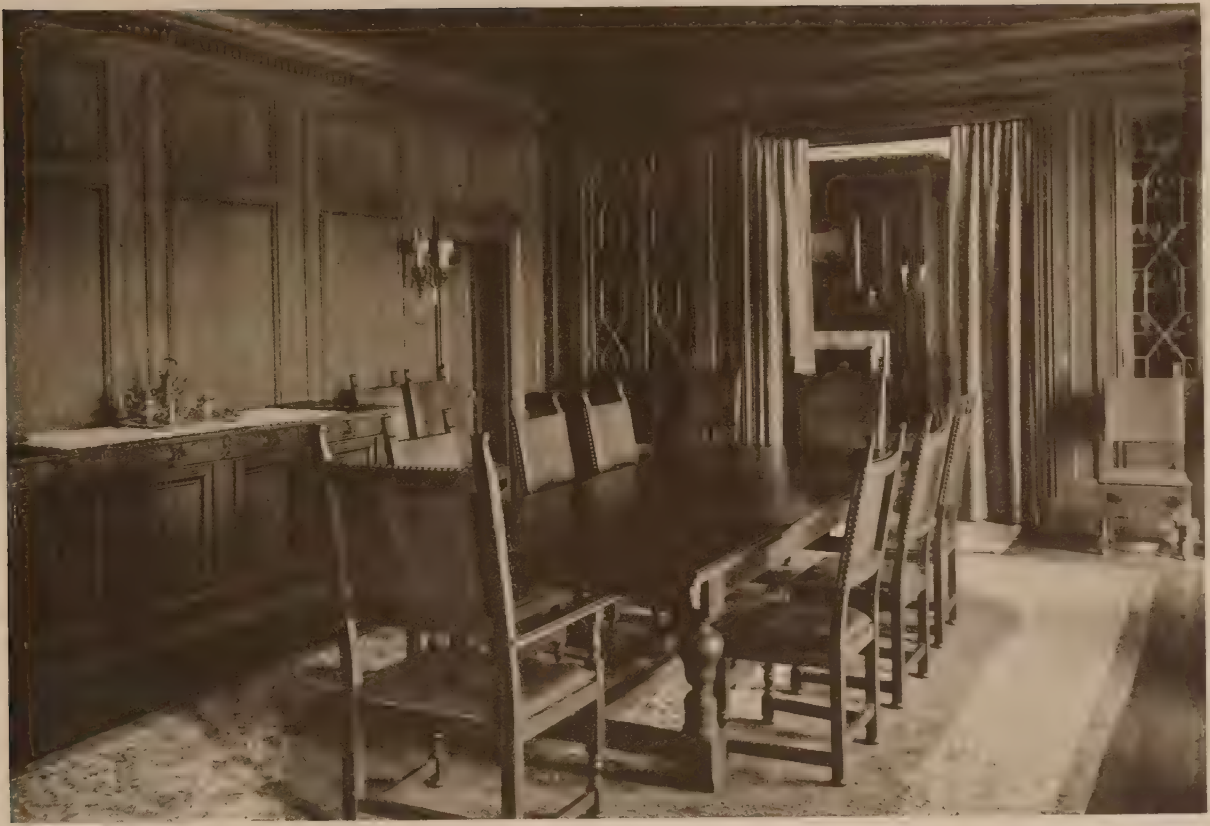
DETAIL ON TERRACE. Parker Morse Hooper, Architect; Frank C. Farley, Associated.

RESIDENCE, EARLE P. CHARLTON, WESTPORT HARBOR, MASS.

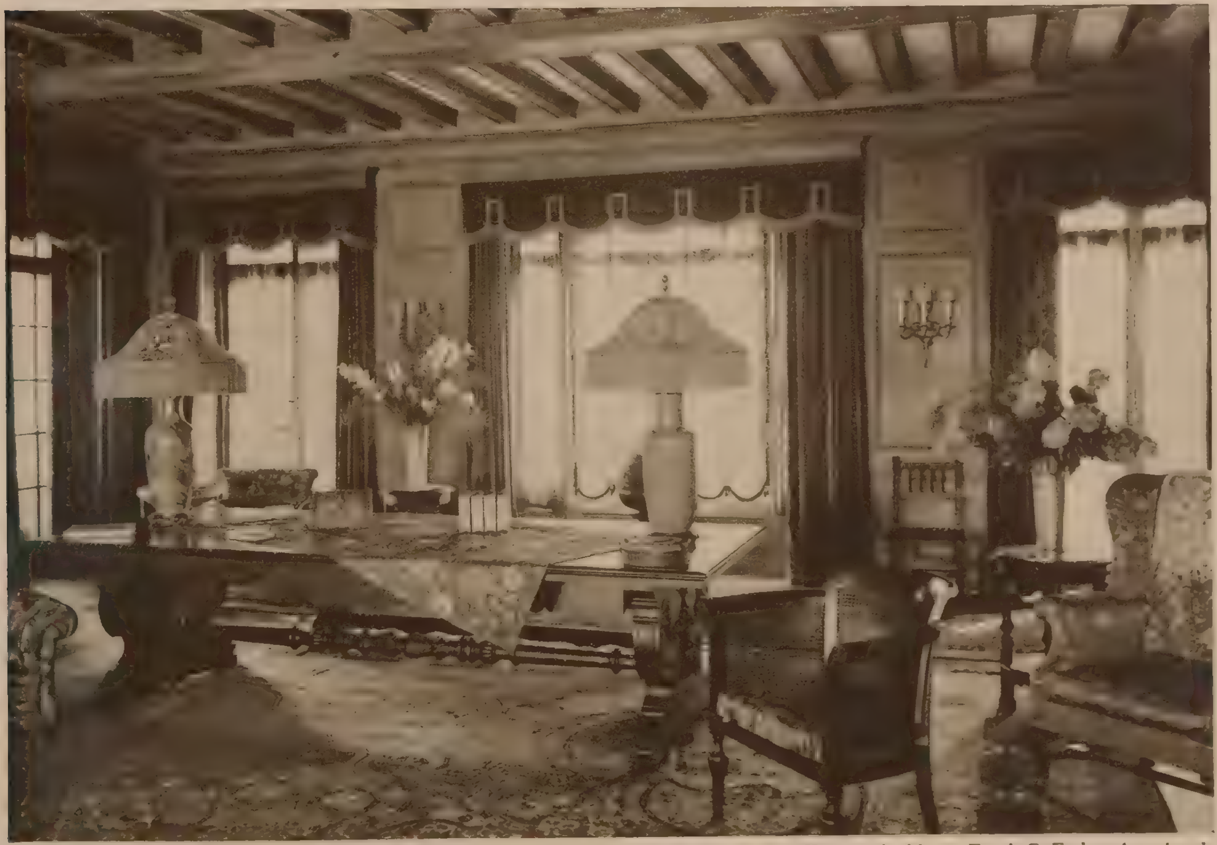


HALL AND STAIRCASE. Parker Morse Hooper, Architect; Frank C. Farley, Associated.

RESIDENCE, EARLE P. CHARLTON, WESTPORT HARBOR, MASS.

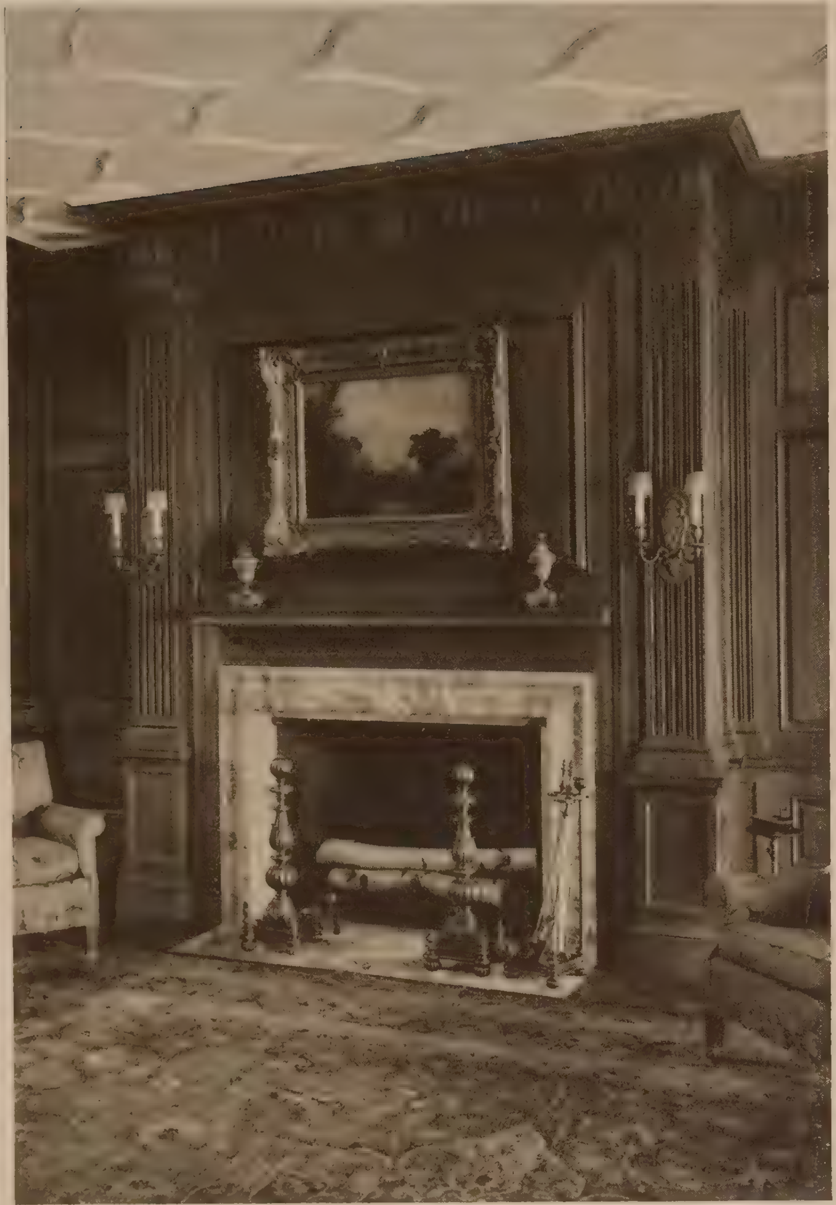


DINING–ROOM.

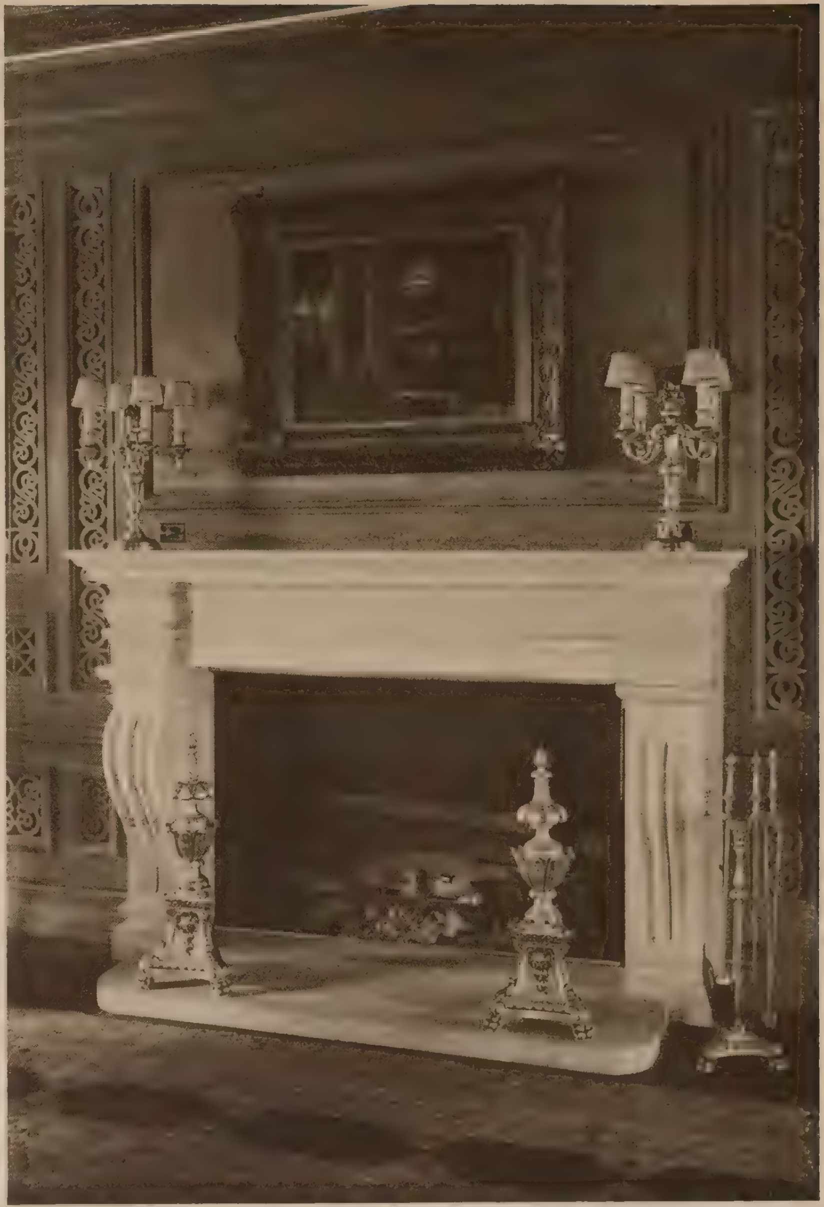


LIVING–ROOM. Parker Morse Hooper, Architect; Frank C. Farley, Associated.

RESIDENCE, EARLE P. CHARLTON, WESTPORT HARBOR, MASS.

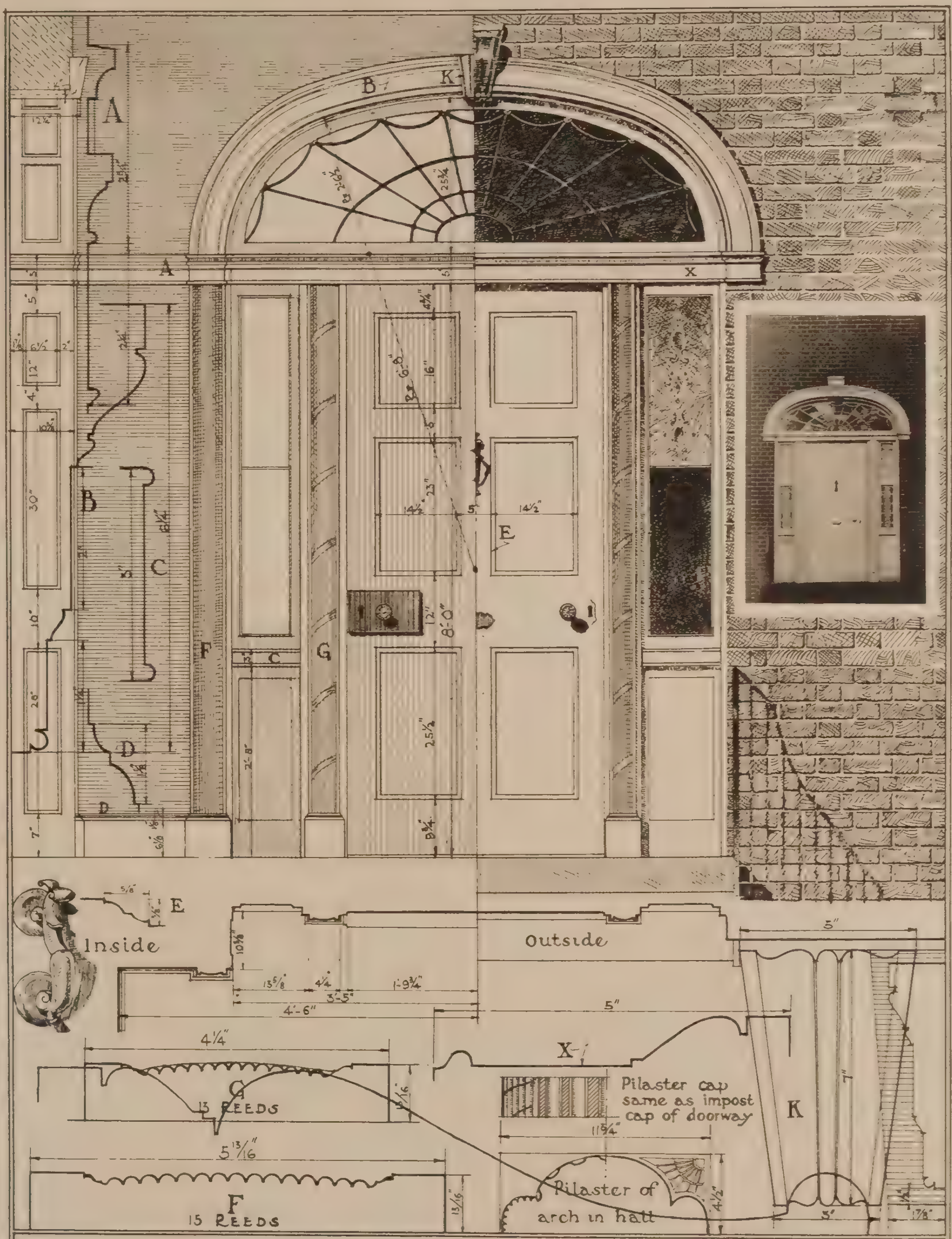


MANTEL IN HALL.



MANTEL IN LIVING–ROOM, SHOWING ORGAN SCREEN AT SIDES.

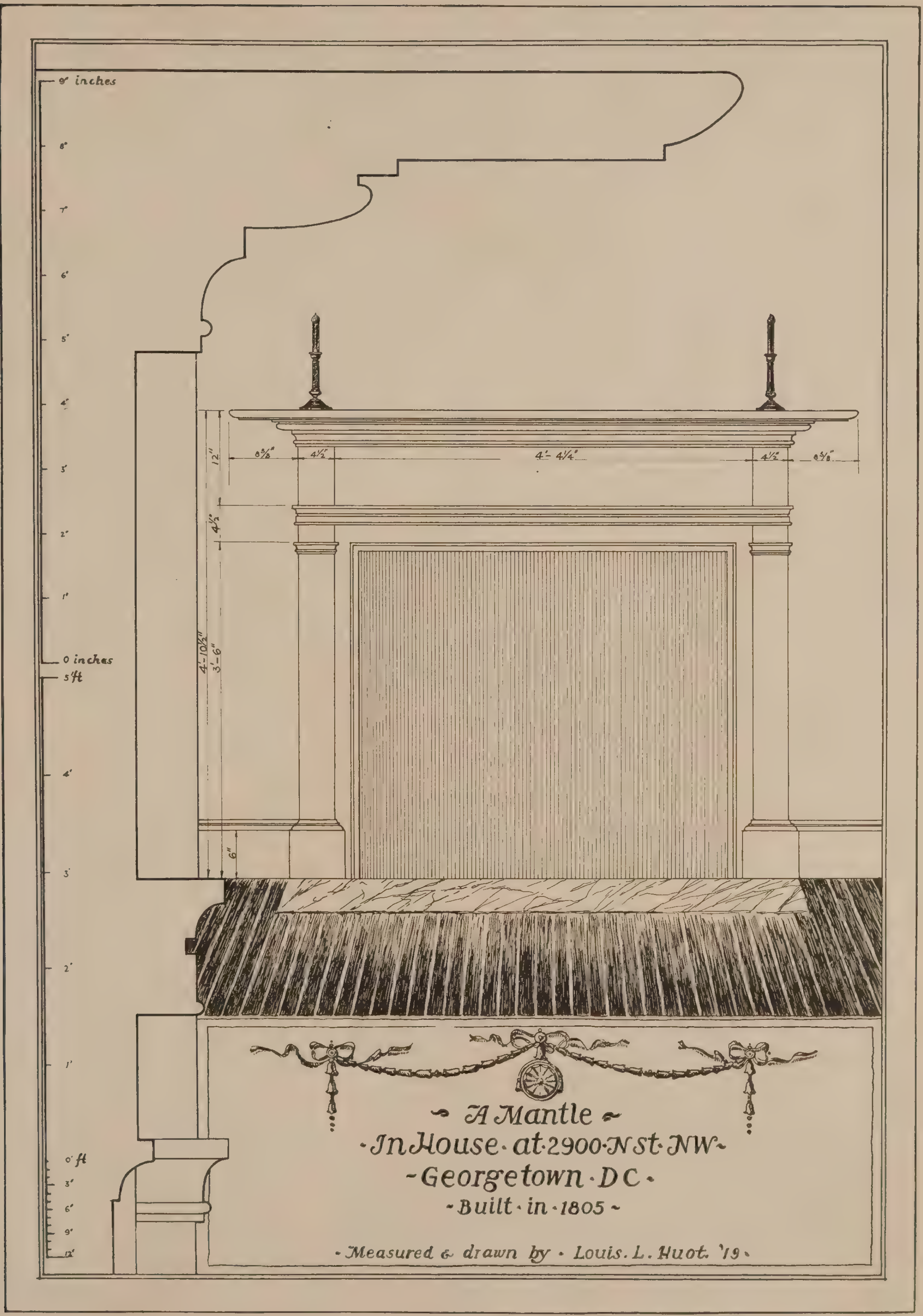
RESIDENCE, EARLE P. CHARLTON, WESTPORT HARBOR, MASS.
Parker Morse Hooper, Architect; Frank C. Farley, Associated.

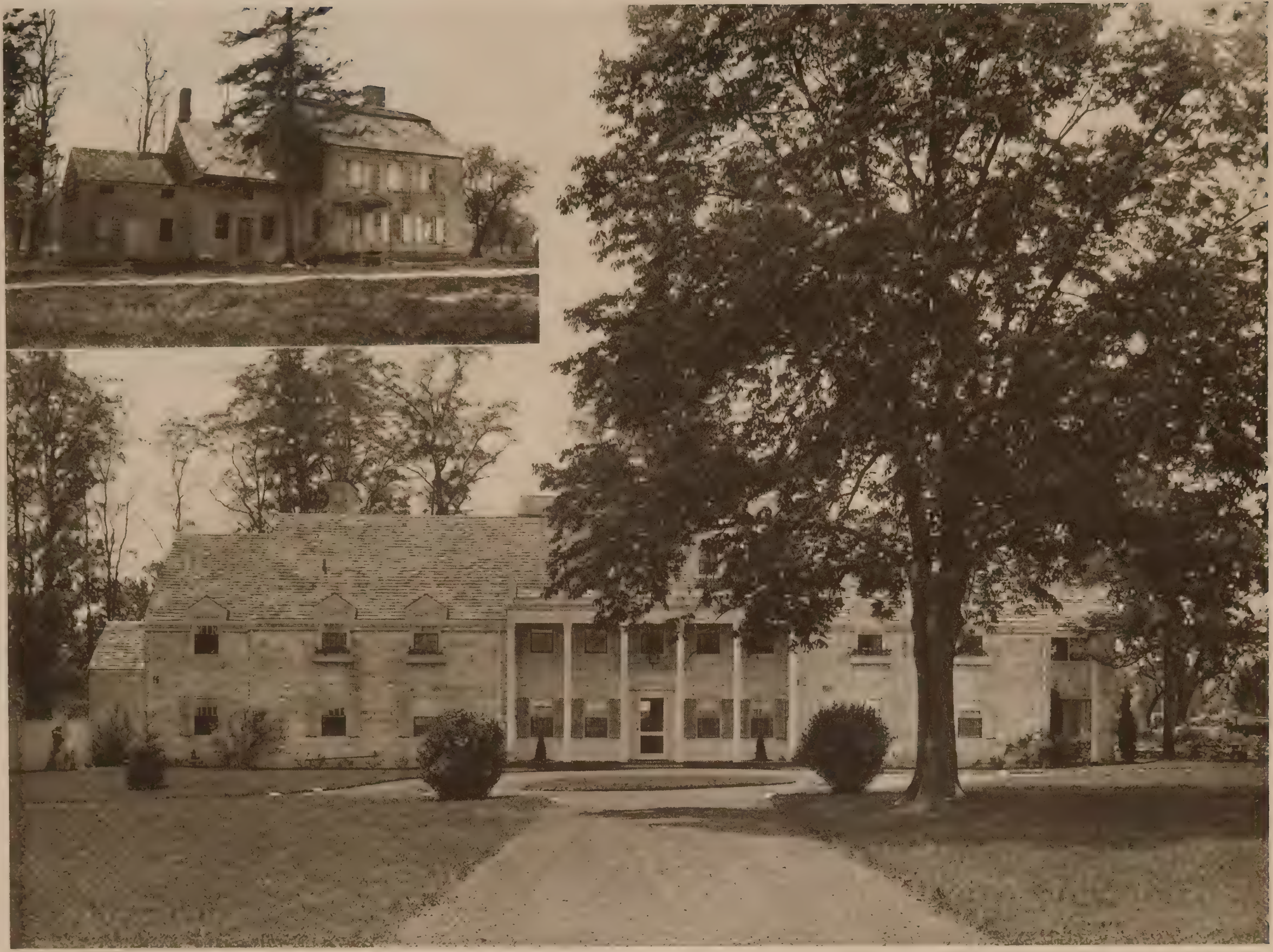


Measured by Alfred W
Eichler and LL Huot..
Drawn by LL Huot..
-Scales-

ENTRANCE·DETAIL
HOOD RESIDENCE

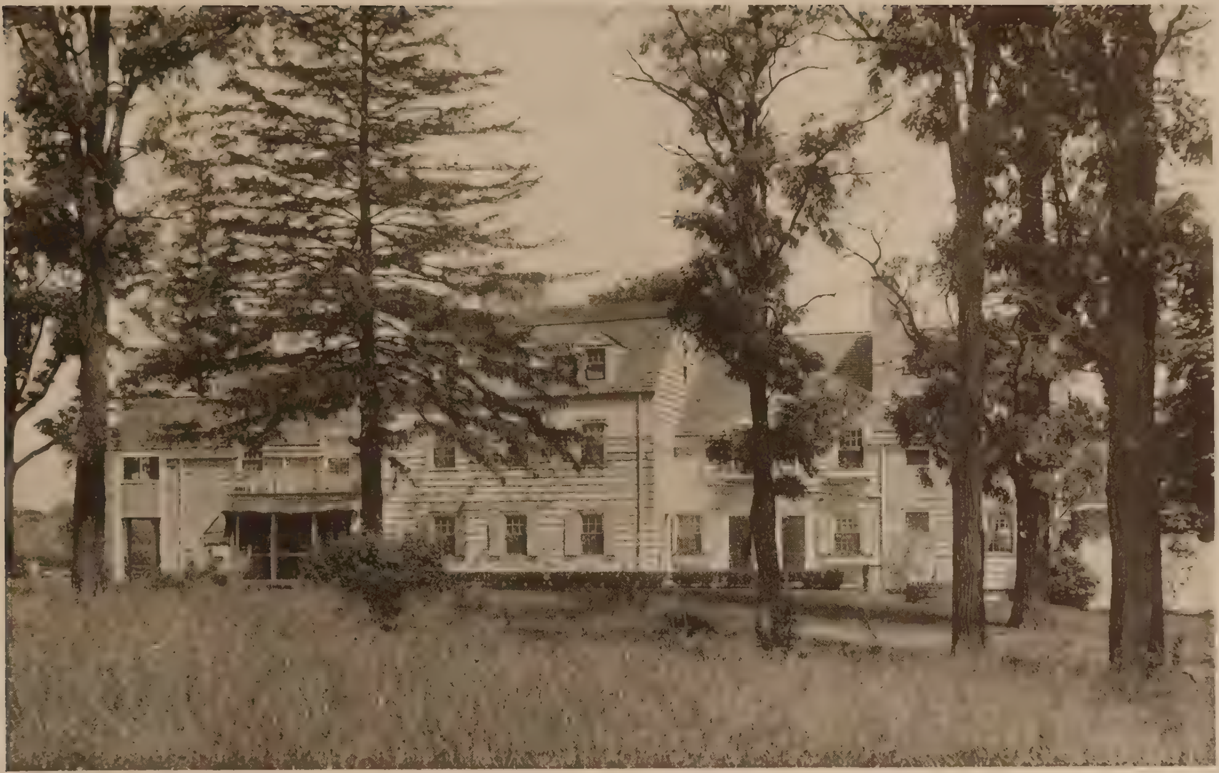
·2812 N st NW Washington DC·
·Built·in·1807·


9 inches
8"
7"
6"
5"
4"
3"
2"
1"
0 inches
5 ft
4'
3'
2'
1'
0 ft
3"
6"
9"
12"
12"
8⅝"
4½"
4'-4¼"
4½"
8⅝"
4½"
4'-10½"
3'-6"
6"
A Mantle
In House at 2900 N St NW
Georgetown DC
Built in 1805
Measured & drawn by Louis. L. Huot '19

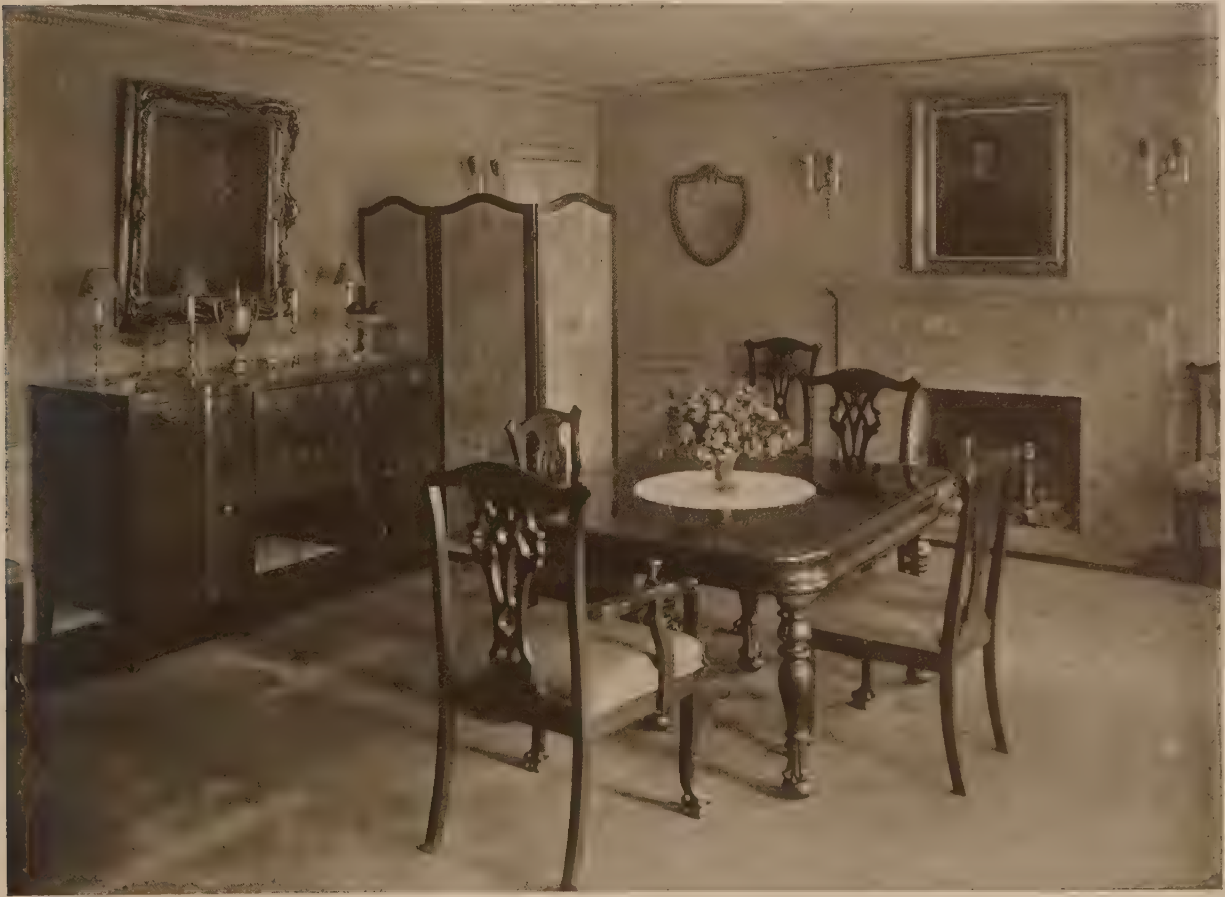


HOMESTEAD FOR CAPTAIN A. P. OSBORN, U. S. A., GLEN HEAD, LONG ISLAND (ALTERATION).

Warren & Clark, Architects.



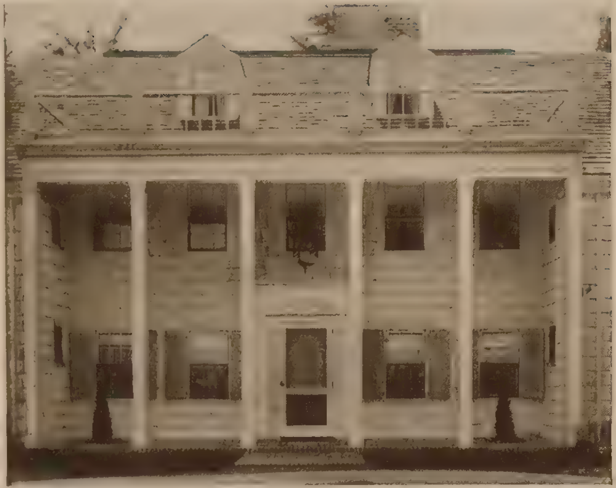
REAR.



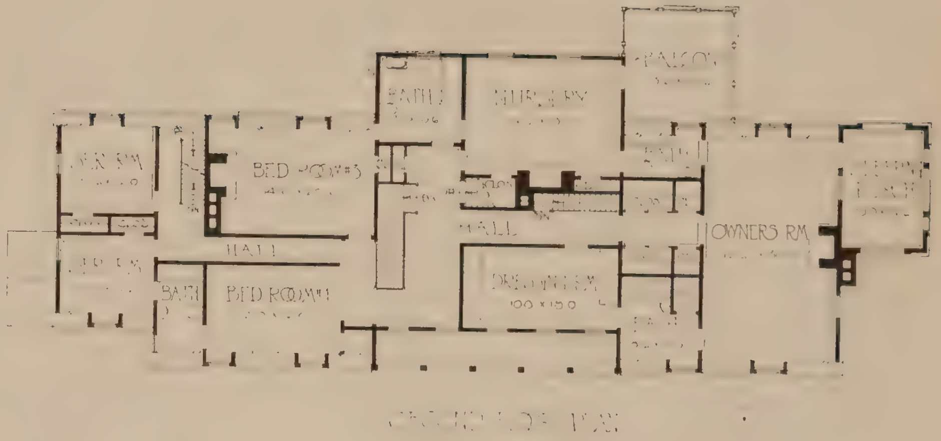
DINING-ROOM.

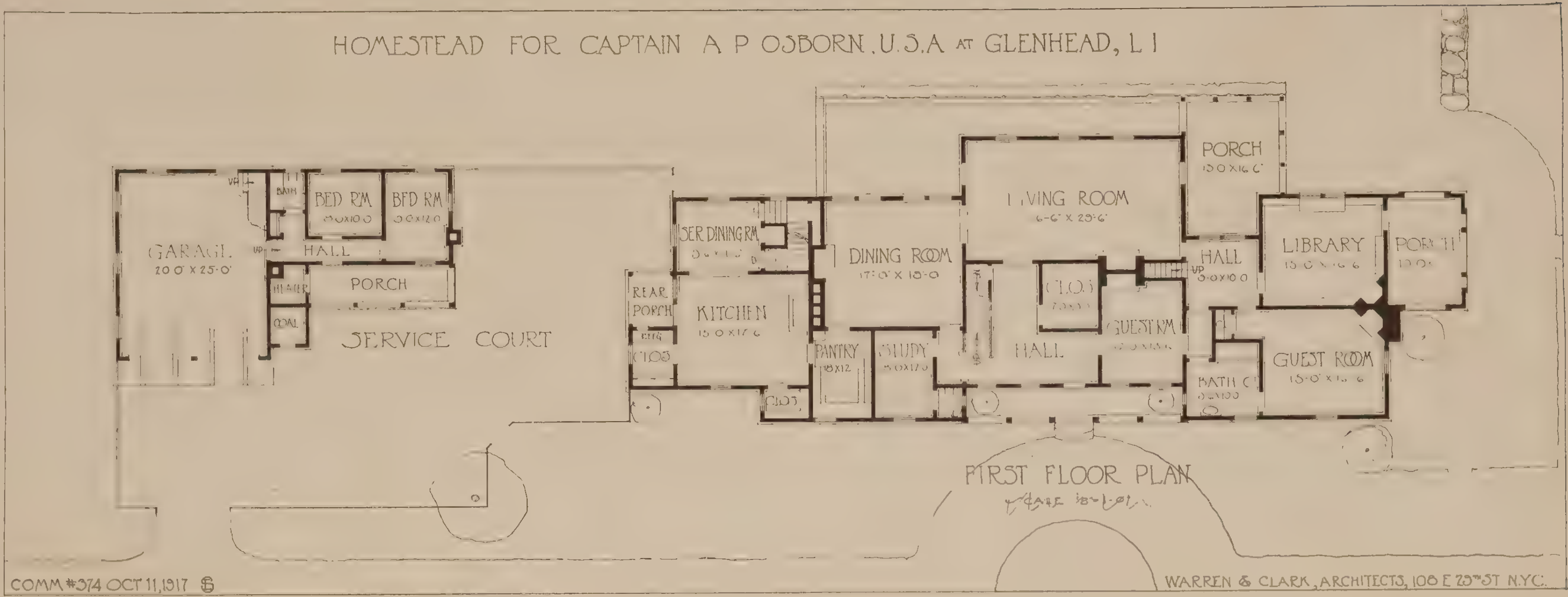
Warren & Clark, Architects.

HOMESTEAD FOR CAPTAIN A. P. OSBORN, U. S. A., GLEN HEAD, L. I. (ALTERATION).



DETAIL OF PORCH.

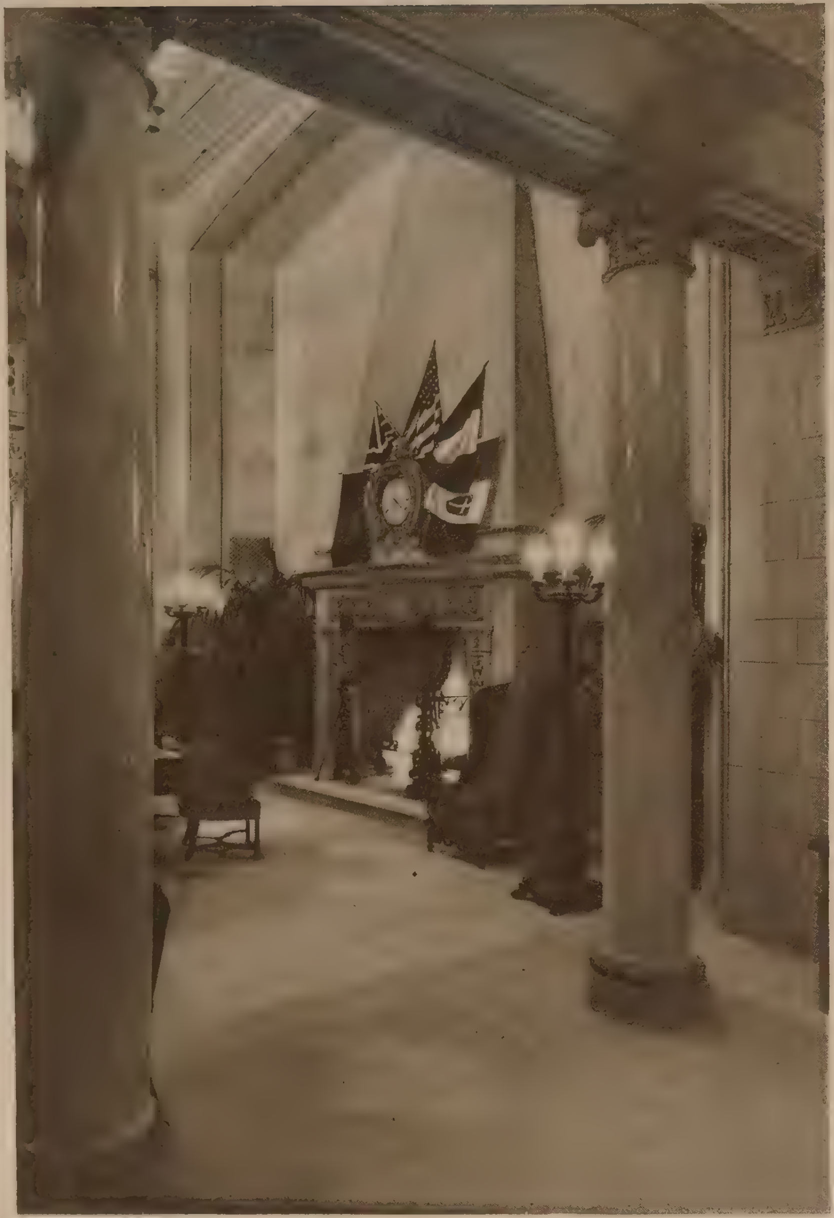




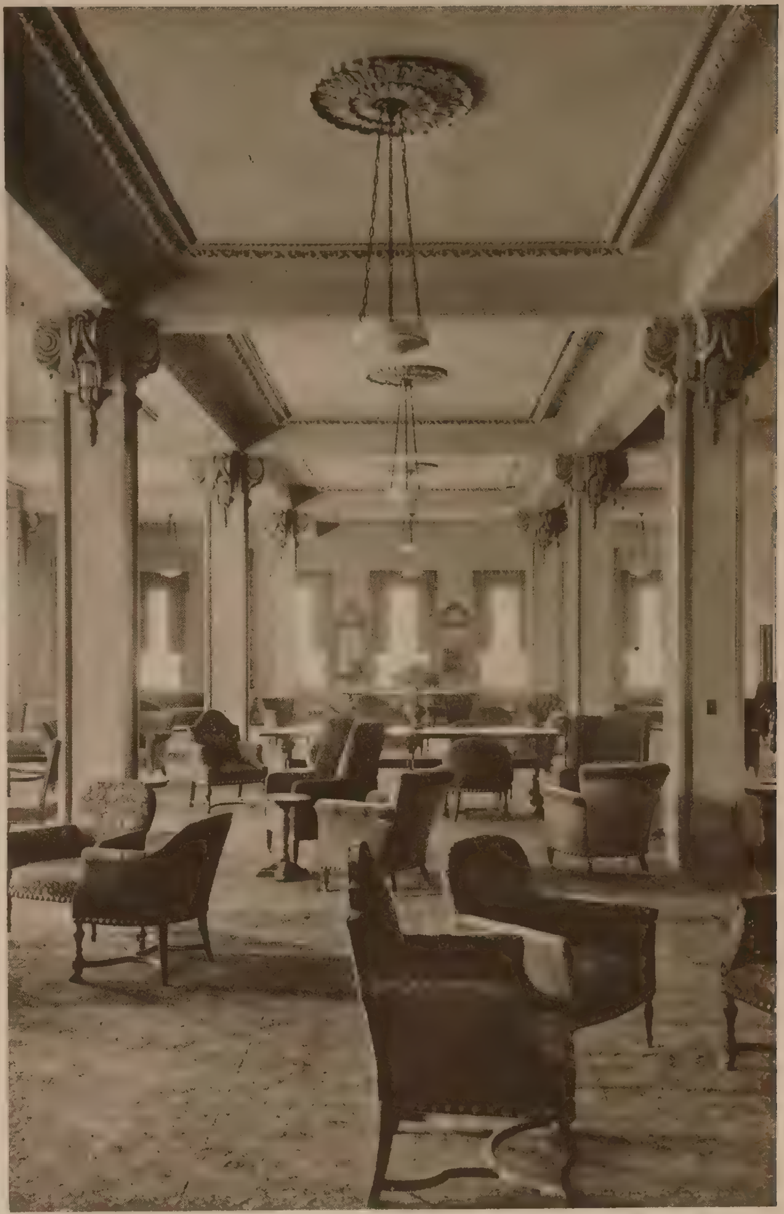
HOMESTEAD FOR CAPTAIN A P OSBORN, U.S.A AT GLENHEAD, L I

COMM #374 OCT 11, 1917

WARREN & CLARK, ARCHITECTS, 108 E 29TH ST N.Y.C.



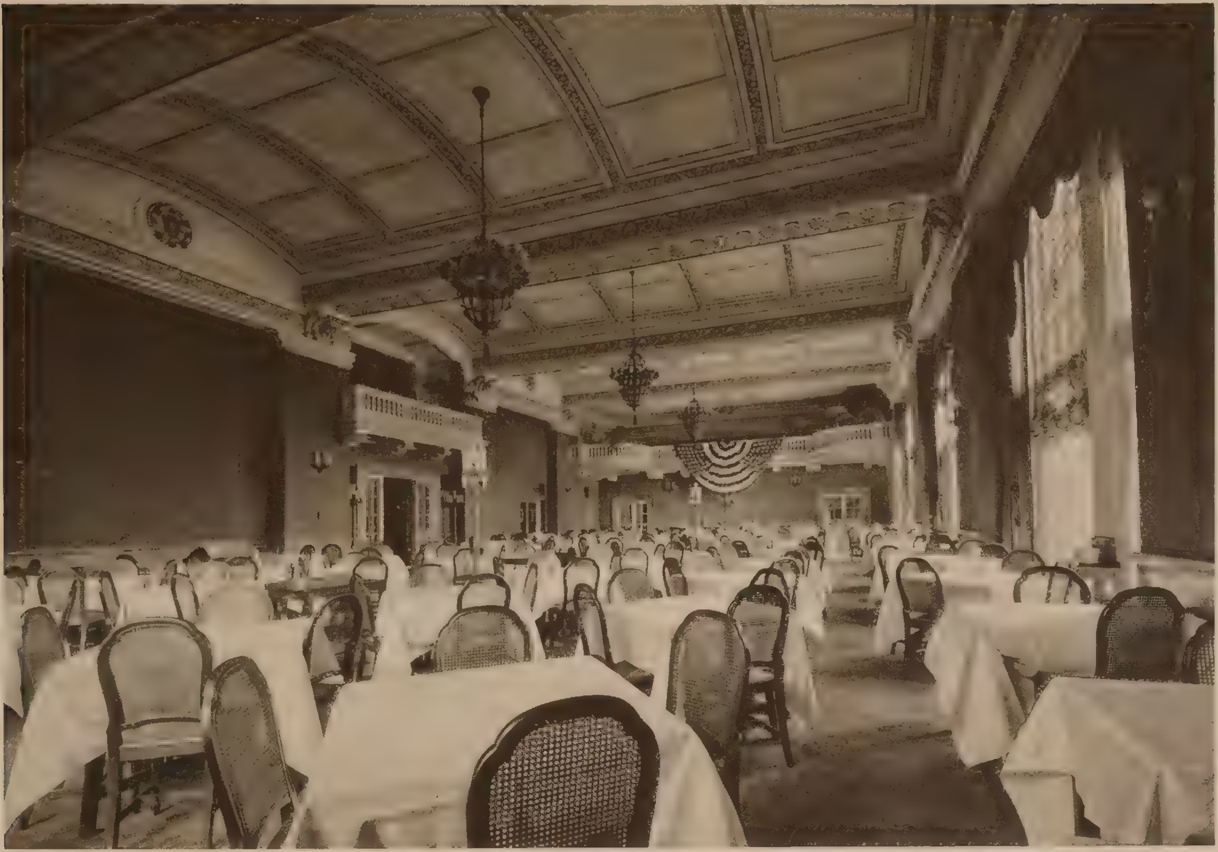
MANTEL IN LOBBY.



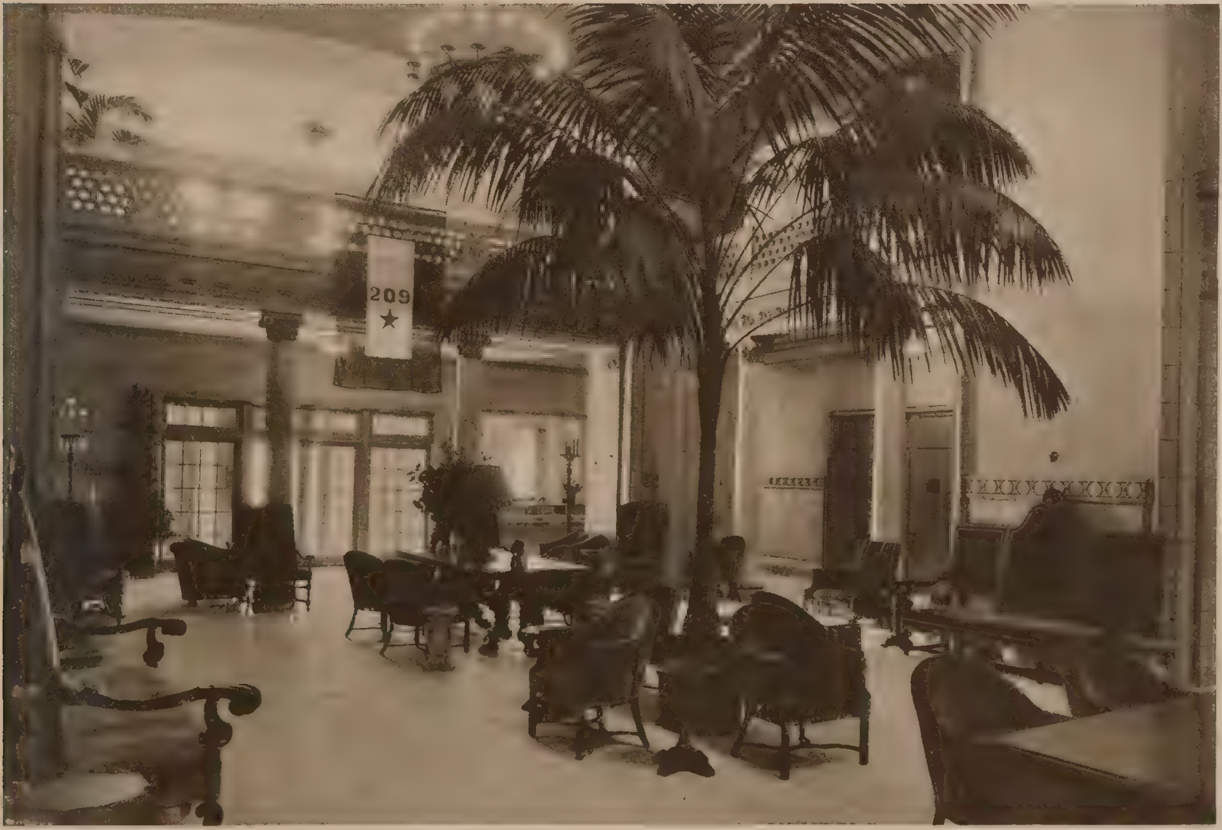
LOUNGE.

A. H. Stem, Architect.

ST. PAUL ATHLETIC CLUB, ST. PAUL, MINN.



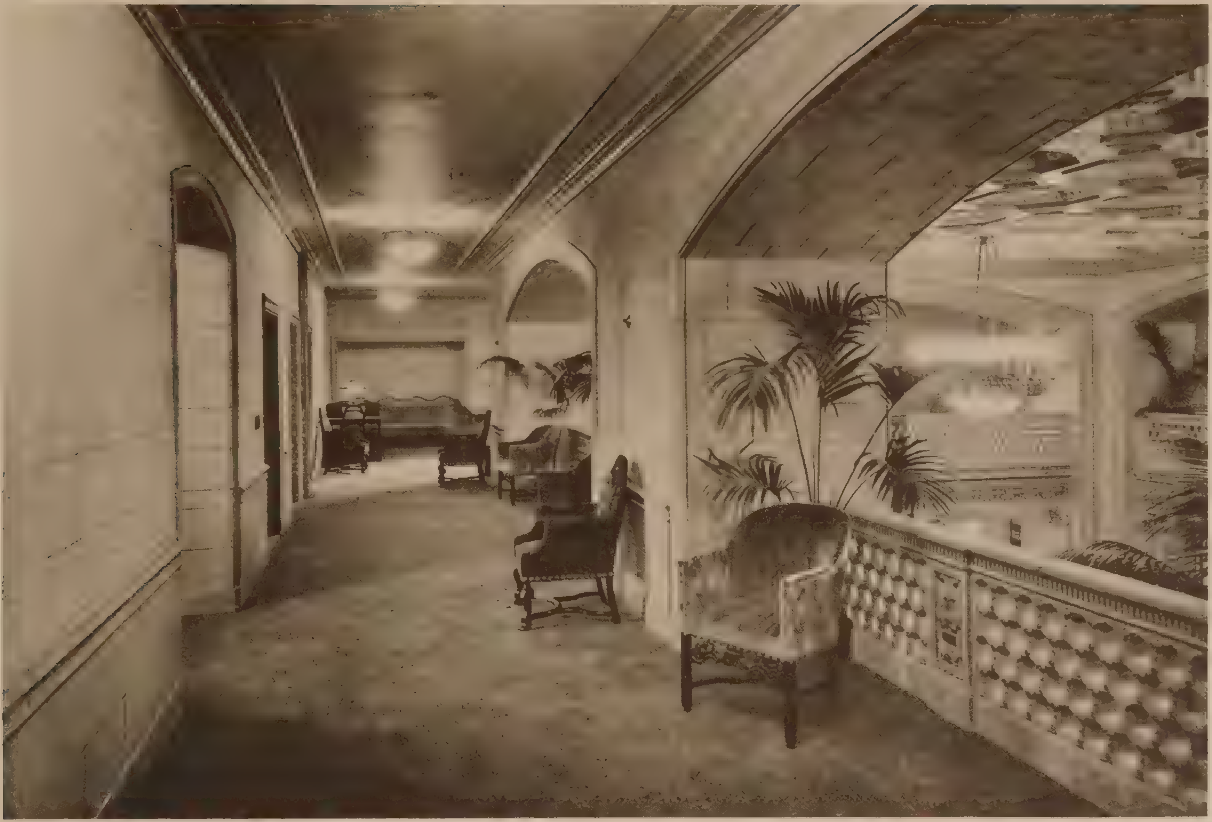
DINING-ROOM.



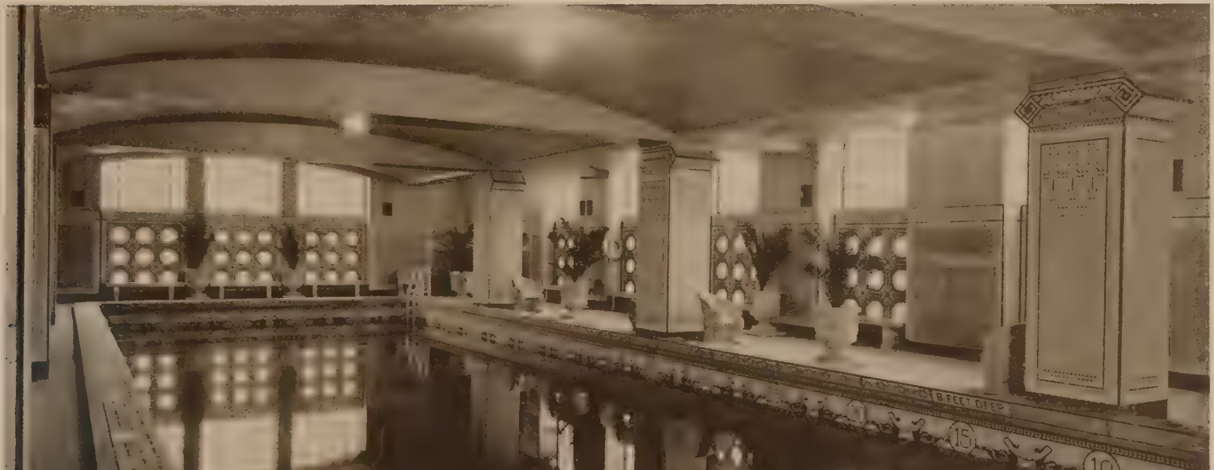
LOBBY

A. H. Stem, Architect.

ST. PAUL ATHLETIC CLUB, ST. PAUL, MINN.



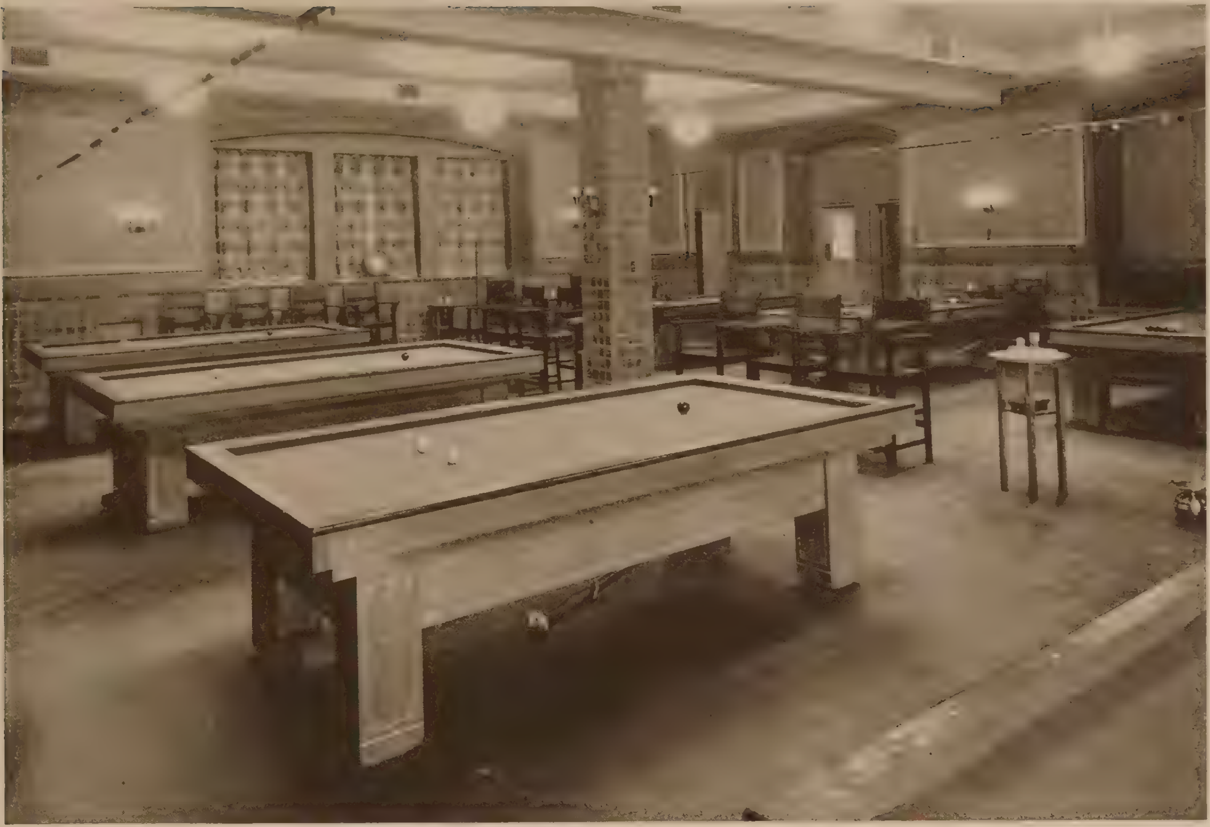
MEZZANINE, WRITING–ROOM.



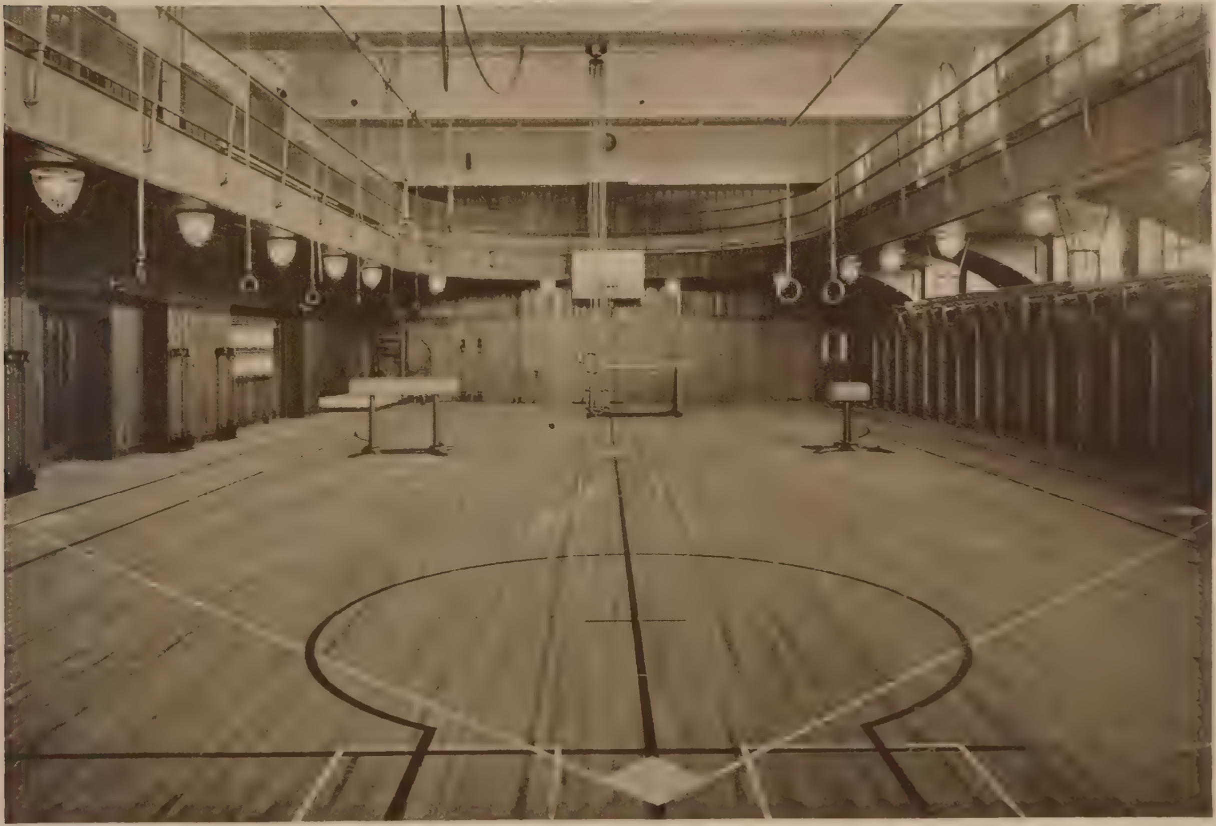
SWIMMING–POOL.

A. H. Stem, Architect.

ST. PAUL ATHLETIC CLUB, ST. PAUL, MINN.



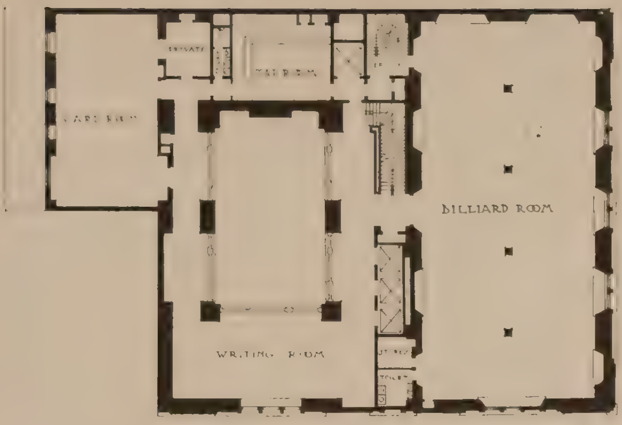
BILLIARD-ROOM.



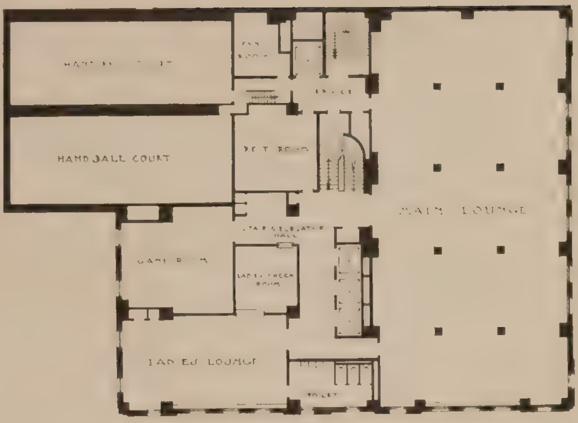
GYMNASIUM.

A. H. Stem, Architect.

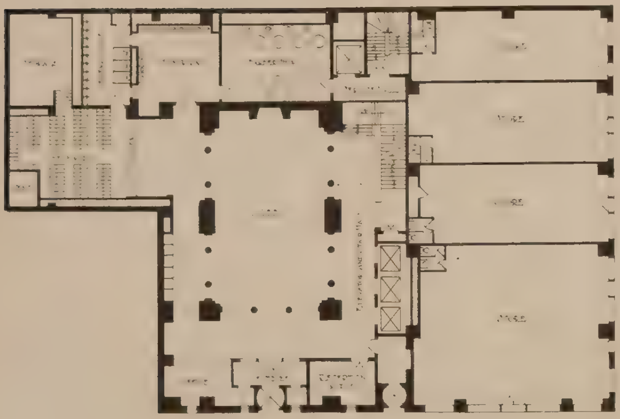
ST. PAUL ATHLETIC CLUB, ST. PAUL, MINN.



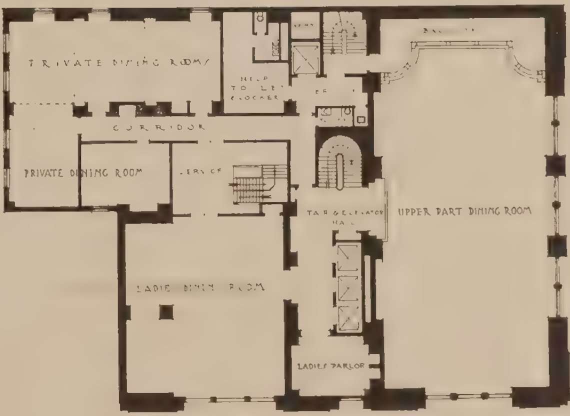
SECOND FLOOR



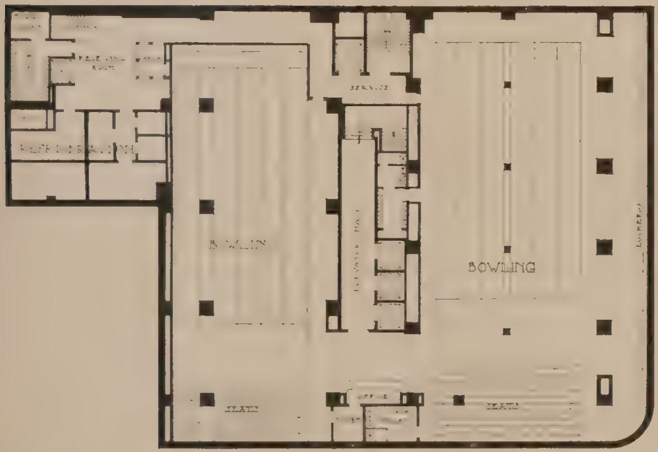
FIFTH FLOOR



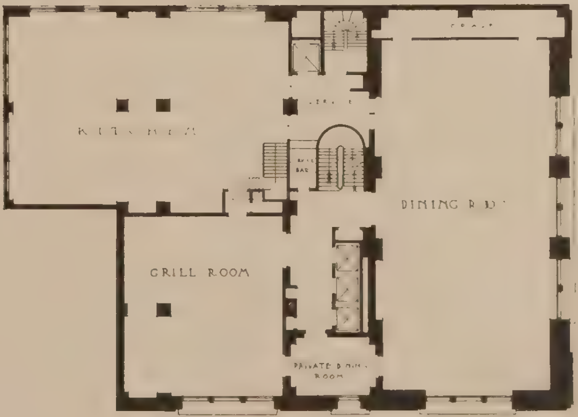
FIRST FLOOR PLAN



FOURTH FLOOR



BASEMENT MEZZANINE FLOOR

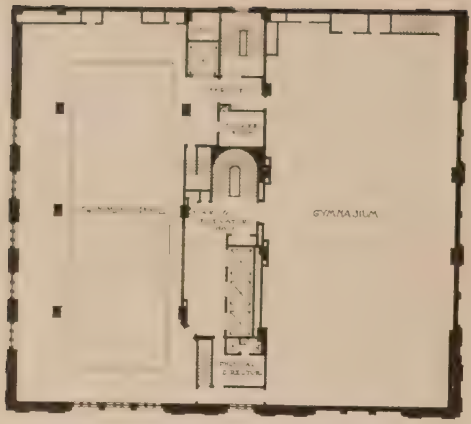


THIRD FLOOR PLAN

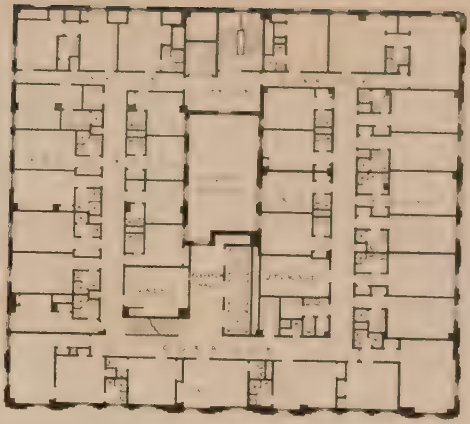
PLANS.

ST. PAUL ATHLETIC CLUB, ST. PAUL, MINN.

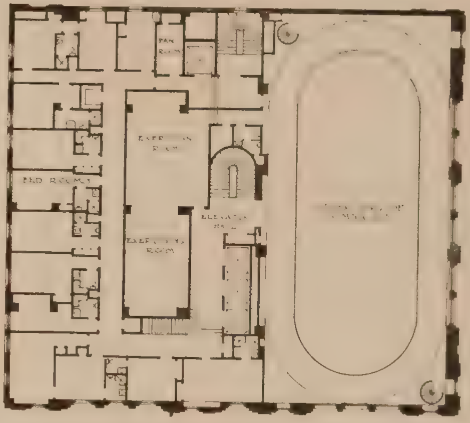
A. H. Stem, Architect.



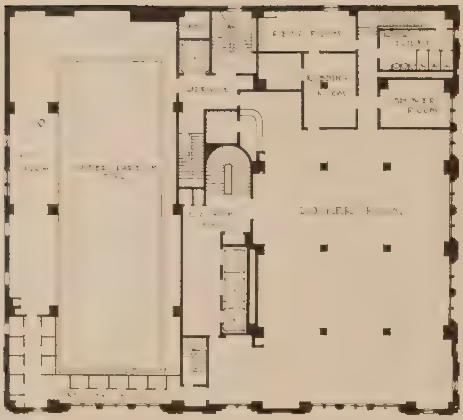
EIGHTH FLOOR



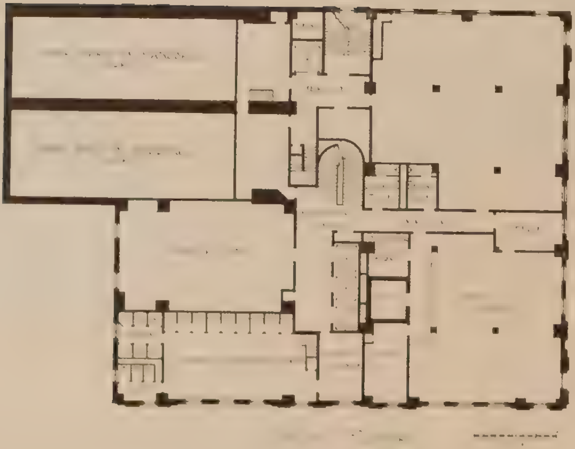
10TH 11TH & 12TH FLOORS



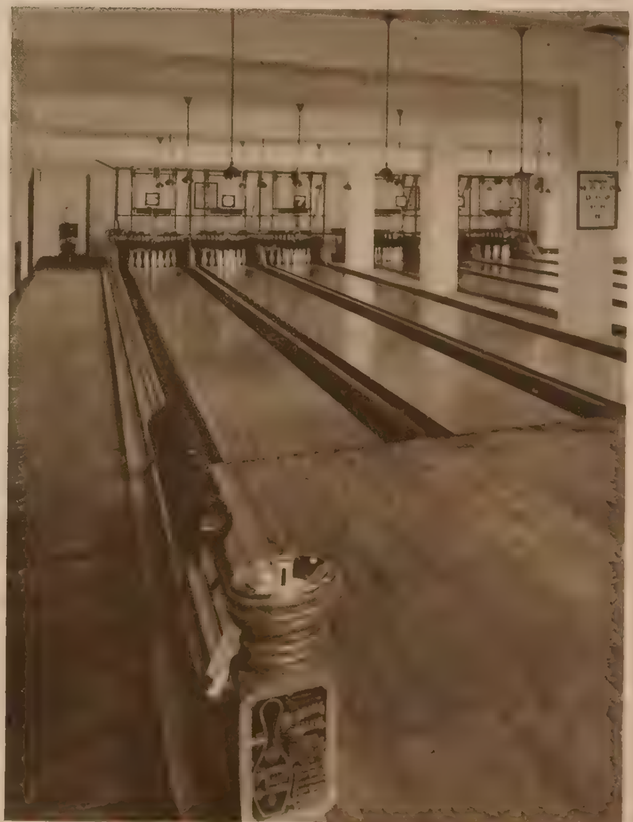
NINTH FLOOR



SEVENTH FLOOR



PLANS.



BOWLING ALLEYS.

ST. PAUL ATHLETIC CLUB, ST. PAUL, MINN.

A. H. Stem, Architect.

Modern Building Superintendence

By David B. Emerson
(Continued from September)

CHAPTER II

EXCAVATION, FOUNDATIONS, CONCRETE

ON our arrival at the job to take up our duties as superintendent, we found that the contractor had commenced excavating, and was making good progress with the work. Work was being done with a one-yard steam-shovel, and all excavated material was being carted away and dumped as rapidly as it was excavated. Always be sure and see that a sufficient number of carts are provided to move the material rapidly, but if too many are used they will cause congestion around the job, which is liable to make friction with the authorities. On further examination the soil was found to be as the tests showed, a good compact gravel, with no underlying silt or quicksand, except that part where the bottom was particularly bad and had to be piled.

As the excavation progresses, we should give orders for the excavation of all trenches for water and sewer-pipes, and for all connections to the street service for electric wiring. This work should be done if possible by the contractor for the excavating, which will avoid complications, and hold one contractor for all street obstructions, etc. The plumber should be notified and he should make all connections for water and sewer, and bring them into the building for connecting to later. The material having been delivered at the building, sheet piling was ordered to be done at once to support the sides of all excavations. Planks for sheeting were ordered to be of sound, square-edged spruce. For that part of the basement where excavation was only about sixteen feet deep, and for all shallow trenches, two-inch plank were thick enough, but where the sub-basement occurred, and the excavation was about twenty-four feet deep, three-inch plank were required, and in one or two places where deeper excavation was called for, four-inch plank were ordered to be used. Sheeting was cut to an angle on the bottom edge, and the upper corners of each plank were cut off to decrease the liability of splitting in driving. The driving of the sheeting was done by means of a compressed air power hammer, a portable air-compressor having been installed to supply air for hammers, drills, rivetters, etc. Sheeting was provided with breast pieces of six by six timber. In the open excavation the sheeting was held in place by means of inclined shores running from the breast pieces to a heavy plank platform or foot piece on the ground; foot piece should always be of sufficient area to distribute the load over the ground, and should be well wedged up. Wedges were ordered to be of oak, as it is less liable to split and splinter in driving than the softer woods. The sheeting in the trenches was held in place by means of short lengths of plank run from side to side of trench and wedged tight. The sheeting being complete and the excavation well under way, the permanent work for the protection of the public was started. Up to this time we had depended upon plank railings around the excavation, now we must build sidewalk bridges, with plank steps at each end, with plank railings, and a plank roof heavy enough to protect the passers from any injury caused by any falling building material. The bridges are to be wired for electric light, and have an inner waterproof ceiling. Bridges were built with heavy ten by ten stringers, floor and roof beams three by twelve, spaced two feet on centres, posts ten by ten, with two by six diagonal braces. Floors and roof were of two-inch plank. Inner ceiling was of seven-eighths sheathing, covered with roofing felt. The contractor's office, with an office for the superintendent, was built on top of the bridge. Office was made weather-tight, wired for electric lights, and provided with a telephone. During the progress of the excavation, and while the preparatory work was going on, building materials were steadily arriving on the job, and we must carefully inspect the same. A good quantity of sand had arrived, and was ordered to be piled where it would not get dirt from cart wheels mixed with it, nor be ground up and pulverized by street traffic. By crunching the sand in the hand near the ear, and noting the sound which was hard and grating, it was found to be good and sharp, and an examination under a magnifying glass showed that it was well graded, but rubbing the damp sand on the palm of the hand showed it to be rather dirty and to contain some loam. A sample of the sand was taken and put in a clear glass bottle, and the bottle filled with water nearly to the top and thoroughly shaken together and the mixture allowed to settle; by measuring the column with a rule it was found that the sand measured six and one-half inches and the dirt on top measured one-half an inch, showing a little over seven per cent of dirt and loam. The contractor agreeing to thoroughly wash the sand, and promising that all future shipments of sand should be cleaner, we agreed to accept it. The broken stone was found to be a very good quality of trap rock, but showed on examination a considerable quantity of crusher dust, and was in consequence ordered to be screened. The stone was ordered in two sizes, that for reinforced work grading from one-eighth inch to three-quarters of an inch in its greatest dimension; that for mass work such as wall footings, under bed of concrete floor in basement, etc., graded up to two inches in its greatest dimension. A carload of cement having arrived, it was brought to the job, and the reports of the mill tests were checked, and the laboratory inspection tags, car initials and numbers were all verified and recorded. The contractor was ordered to put up a weather-proof storage shed, with a good tight floor, raised at least twelve inches above the ground, in which to store the cement. In the total shipment there were found to be a few broken packages; these were put to one side, for immediate use, more preferably in some of the mass concrete which was not subject to very heavy loading. A sufficient supply of materials being now on hand, and the excavation practically completed, concreting can be commenced at once. All of the concrete, according to the specifications, is to be machine mixed, using a rotary batch mixer. The mixer should make not more than ten or twleve revolutions a minute, and not less than twenty-five complete revolutions should be made for each batch. A gong was attached to the mixer, fixed so as to ring when the fixed number of revolutions had been made. All materials, including the water, must be measured; not over six gallons of water to a bag of cement should be used.

Particular care was taken to note the color of each batch as it comes from the mixer, as uniformity of color must be insisted upon. The concrete for the beds under the column grillage, for all wall footings, and for the under beds of concrete floors will all be mass concrete, and it was specified to be mixed one part Portland cement, three parts sand, and five parts broken stone. After the concrete was mixed we were very particular in seeing that it was deposited in place as quickly as possible, and that at all times there were a sufficient number of laborers on the job to take the concrete as fast as it leaves the mixer and wheel it to the points where it is to be placed, and that other laborers are ready to ram it into place, being very careful to see that no concrete is used that has been discharged from the mixer over twenty-five minutes. A careful watch was kept on all barrows and buggies to see that no lumps of concrete were allowed to remain in them, and we made it a rule that all receptacles were thoroughly cleaned at the cessation of work.

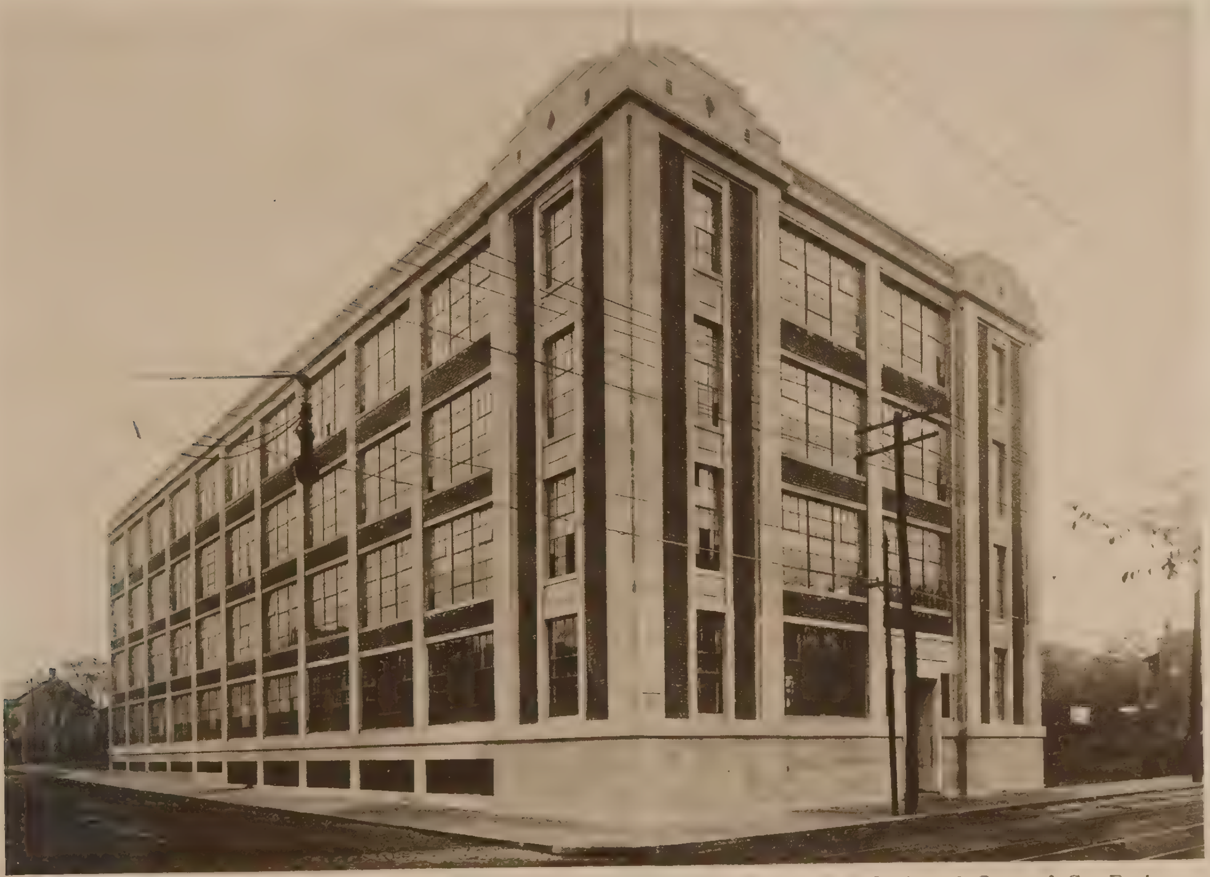
All pipe trenches in basement and sub-basement, and all sump pits will be lined with concrete, and all foundations for pumps, filters, and other machinery will be formed of concrete. While the work of placing the concrete was progressing, the piles are being driven in that portion of the foundations where piling was found to be necessary on account of the poor bearing value of the soil. The system of piling finally selected was one in which the pile is formed by driving a collapsible steel mandrel, encased in a spirally reinforced sheet steel shell, then withdrawing the collapsed mandrel, after sufficient penetration had been secured, and filling the shells with concrete. The piles were driven by means of a steam pile-driver, mounted on a turn-table. The concrete used for filling of the shells was the mixture specified for reinforced work. The space around the heads of piles was filled with concrete to make a bed for the column grillage. As soon as the beds for the grillage had set, the steel erectors commenced to set the grillage, about which more will be said in our next chapter. The grillage was well grouted under with cement grout, composed of one part cement and two parts sand, mixed very wet and poured under the beams. Dams of damp sand should be laid all around the grillage to hold the grout in place until it has set. Each layer of grillage should be filled with concrete after setting; the concrete should be as called for in reinforced concrete. A close watch was kept to see that the concrete was well spaded and rammed in between the beams of grillage to fill all spaces thoroughly. It had been previously decided that that portion of the basement walls which were located over that portion of the lot where the bearing quality of the soil was affected by the presence of the old stream bed, should rest upon concrete beams running from column footing to column footing, instead of the regular wall footings resting upon the earth. This was done to prevent irregular settlement of the walls, which might cause cracking, bulging, and other defects in the walls. These beams, the bottom and side walls of swimming tank, the walls and ceiling of bank and safe-deposit vaults, and the sidewalk vault walls will be of reinforced concrete. Concrete was specified to be mixed in the proportion of one part cement to six parts aggregate, to be measured separately. Proportions to be measured by volume, taking one bag containing ninety-four pounds of cement to equal one cubic foot. The proportions of sand and stone shall be chosen so as to give a concrete of maximum density, but in no case, however, shall the amount of sand be less than forty per cent of the stone.

The reinforcement of the beams will be of structural grade steel, the bars will have a positive mechanical bond, and are to be bent as shown on the detail drawings where required. The reinforcement of the swimming-tank bottom and side walls will consist of two layers of expanded metal, placed one inch from the inside and outside surface of the concrete. The reinforcement of bank and safe-deposit vault walls, roof and floors, will be composed of fifty pound steel rails, set alternate flange to outside and head to outside, lapped over the top and bottom, and bolted together with long steel rods, this reinforcing probably giving the best resistance known to drills and explosives. The reinforcing of sidewalk vault walls will be twelve-inch steel I beams, set six feet on centres, the concrete being filled in between. The lumber for the forms for concrete work having been delivered and inspected, was found to be as specified, a good quality long leaf yellow pine, free from knot-holes, dressed on one side, with the edges dressed to a slight bevel to make tight joints. This is better than twinging and grooving. The bottoms of all beam forms should be of two-inch plank, and the sides of beam forms should be of one and a half inch plank; for all other form work seven-eighths inch lumber will be sufficient. Care must be taken to see that all forms are properly braced, and that they are tightened up with wire ties. Joist for forms should be two by six, spaced from twelve to twenty-four inches apart, depending upon the height of form work, and thoroughly braced.

We were very careful to see that beam forms were properly supported by posts, and that the posts set on bearing platforms on the earth to prevent settlement, and were double-wedged at their feet, so that the work could be set up tight. When the form work was complete the placing of the reinforcing steel should be commenced. We kept a very close watch on this part of the work, checking it very carefully to see that it was done exactly according to the details, and that no deviation was made from the engineers' drawings under any circumstance, as even a slight displacement of the rods materially affects the strength of the concrete. All rods must be properly held in place by means of spacers, and securely wired where necessary; all stirrups must be accurately spaced, as shown on the drawings. Before the pouring of the concrete is started we will look over the forms carefully and see that no shavings, sawdust, or other rubbish are left in them, and have them thoroughly cleaned. More than likely it will be found that the workmen have made them a repository for waste paper, old socks, and the refuse from their dinner-pails. All this must be removed. The forms were ordered to be thoroughly wet down and the pouring of the concrete was commenced. In pouring concrete always start at a time so that beams, slabs, or walls will be completed monolithically, if possible, and if work has to be stopped, always stop in the centre of a beam or panel, as at that point the minimum shearing stresses occur. When pouring concrete spade back the stones so as to give a mortar finish to the face, also puddle concrete to work out the air bubbles. If work has to be stopped for any cause, on resuming work the concrete which has been previously placed shall be roughened and thoroughly cleaned of all foreign matter, drenched and slushed with cement mortar composed of one part Portland cement and two parts sand. If the weather is warm we must see that the exposed surfaces of the concrete are kept damp for three or four days to prevent checking by too rapid setting of the cement. The walls of swimming tank and the walls of bank and safe-deposit vaults shall have at least two expansion joints in their length. Expansion joints should have a key, and be filled in with asphalt. As soon as the under bed of basement and sub-basement floors and the wall footings were in place and set hard, the waterproofing contractor started in on his work, waterproofing the basement and sub-basement floors, pipe trenches, basement walls, area walls, and swimming tank. The waterproofing as called for in the specifications was to be done by the membrane method, using a heavy saturated roofing felt, weighing not less than fifteen pounds to one hundred square feet of single ply, and the best quality of coal-tar pitch. The under bed of all concrete floors, all pits and trenches, and the tops of all wall footings will be thoroughly coated with hot pitch, well mopped on; over this pitch will be laid five layers of felt, each layer being put down separately and well mopped with pitch. The joints in the felt must be made to lap one-fifth the width of the sheets, and be thoroughly cemented with the pitch. The waterproofing of the floors and the trenches will be continuous, and the waterproofing under the walls will be provided with laps for connecting it to the waterproofing of the floors and the walls. Before the waterproofing under the walls, we must see the bricklayer has laid a stretcher course of brick along the centre line of the walls to form a key, over which the waterproofing must be laid, otherwise the walls may slip on the smooth surface of the waterproofing. Just as soon as the basement and sub-basement floors are waterproofed we must notify the contractor that he must lay the top portion of concrete floors at once, so that the waterproofing will not be damaged. The swimming tank will have five-ply waterproofing on the inside of bottom and walls.

The waterproofing of the basement walls will be done by laying up a four-inch brick wall immediately outside the line of walls and covering this wall with five-ply waterproofing, against which the walls will be built, and the waterproofing will be turned up over the walls at the grade level. While the above work was progressing a quantity of structural steel was being delivered at the job. A sufficient amount being on hand the work of erection will be commenced, about which we will tell in the next chapter.

(*To be continued.*)



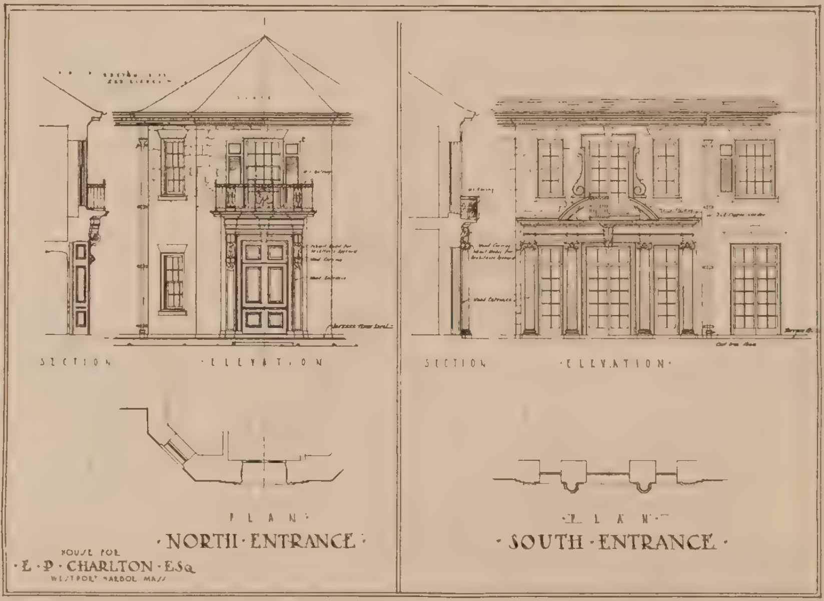
THE HENRY G. THOMPSON & SON COMPANY, NEW HAVEN, CONN. Lockwood, Greene & Co., Engineers.

This plant is for the manufacture of hack saw blades. They also make power hack saw machines. The general offices of the company are also accommodated on the first floor. The other space is occupied by the machine tools and other equipment used in the manufacture of their product.

The building is 67 feet 4 inches wide, 180 feet long, four stories and basement, flat slab type, reinforced concrete construction. Basement story height is 11 feet top to top, the fourth floor 15 feet, others 12 feet. Bays 16 feet square approximately. There are two stair towers, one each on the front and rear left hand corners of the building. An elevator and toilet tower is provided in the middle of the left-hand side of the building. This building was completed in the fall of 1917, in almost five months time.

The Country Home of Earle P. Charlton, Esq., at Westport Harbor, Mass.

THE problem of what style of architecture shall be used for a country house is one which often puzzles both client and architect. In the case of the Charlton house at Westport Harbor, Mass., the topography and character of the location determined this all-important question. An open hill meadow running out to a rocky point in one direction and gently sloping down to a broad beach in the other, seemed the most suitable location in an estate of many acres. The view from this hill-top is one of the most extensive and beautiful on the north Atlantic coast. To take advantage of this view, and to tie the house in with its surroundings, a field-stone house of many windows and numerous porches and terraces, was designed. A house which, although large and containing many rooms, should not appear pretentious or out of place in a seashore colony of simple houses. For this reason the roof lines were kept low and the plan compact. The field-stones of the walls of the house, which were laid to a flat surface, were selected for color and shape. To relieve any possible effect of formality, all of the trim and details of this otherwise fireproof house were carried out in wood painted buff. To make the house inconspicuous, the broad expanse of the low roofs was covered with heavy gray-green slate of varying widths and shades. A circular drive laid out on a level lawn makes a fitting approach to the main entrance door, which was designed in the style of the English Renaissance, the forerunner and inspiration of American colonial architecture. This entrance opens into a panelled vestibule, through the glass doors of which stretches a wide hall. This hall extends through the entire house, making it possible to have casement doors opening onto a broad stone terrace overlooking the sea. In this hall the color-scheme is cream and mulberry. On the left of this hall a spacious living-room occupies the entire north end of the first floor. This room, which has long casement windows on three sides, is panelled in quartered oak like the main hall, from floor to ceiling, and is decorated in a simple adaptation of the Italian Renaissance style, in shades of blue and gray. On either side of a large Italian consol mantelpiece in this room, panels of simple grill-work conceal the pipes of an Aeolian organ. At the east end of this living-room large doors lead out into covered porches on the two corners of the house, and into a sun-room in the centre. This sun-room is treated with lattice-work painted warm gray over rough plaster walls.

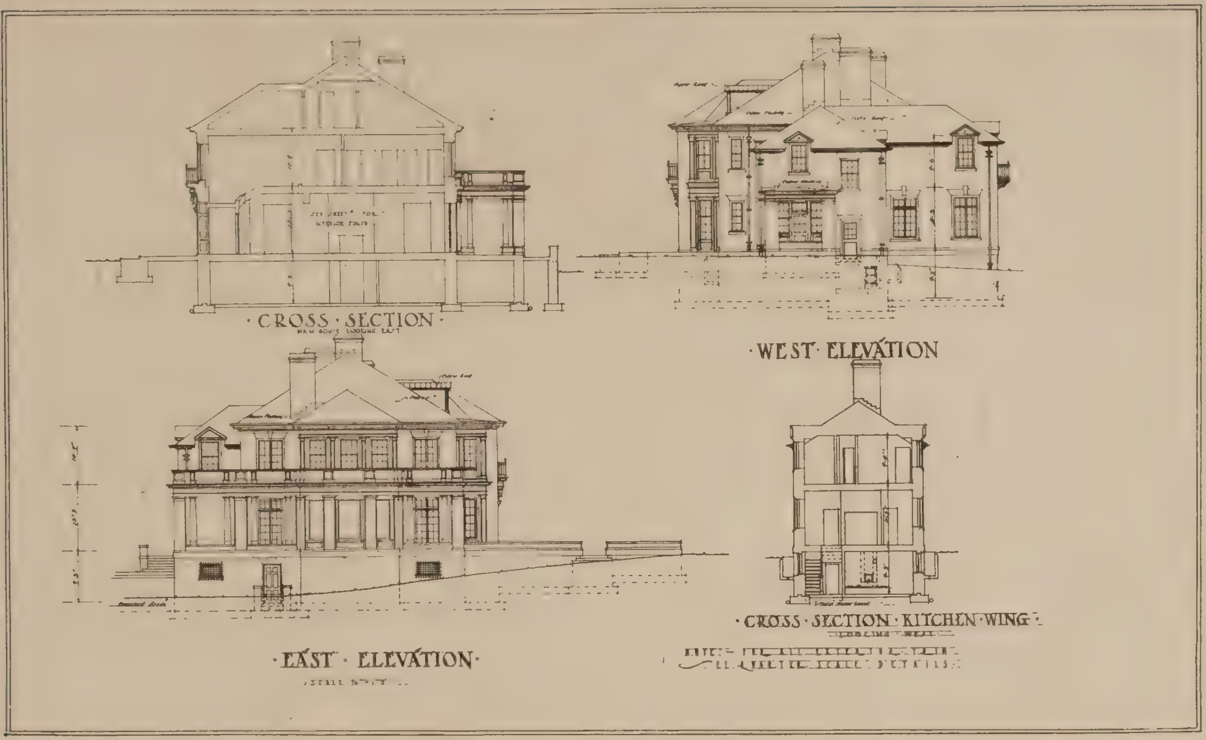


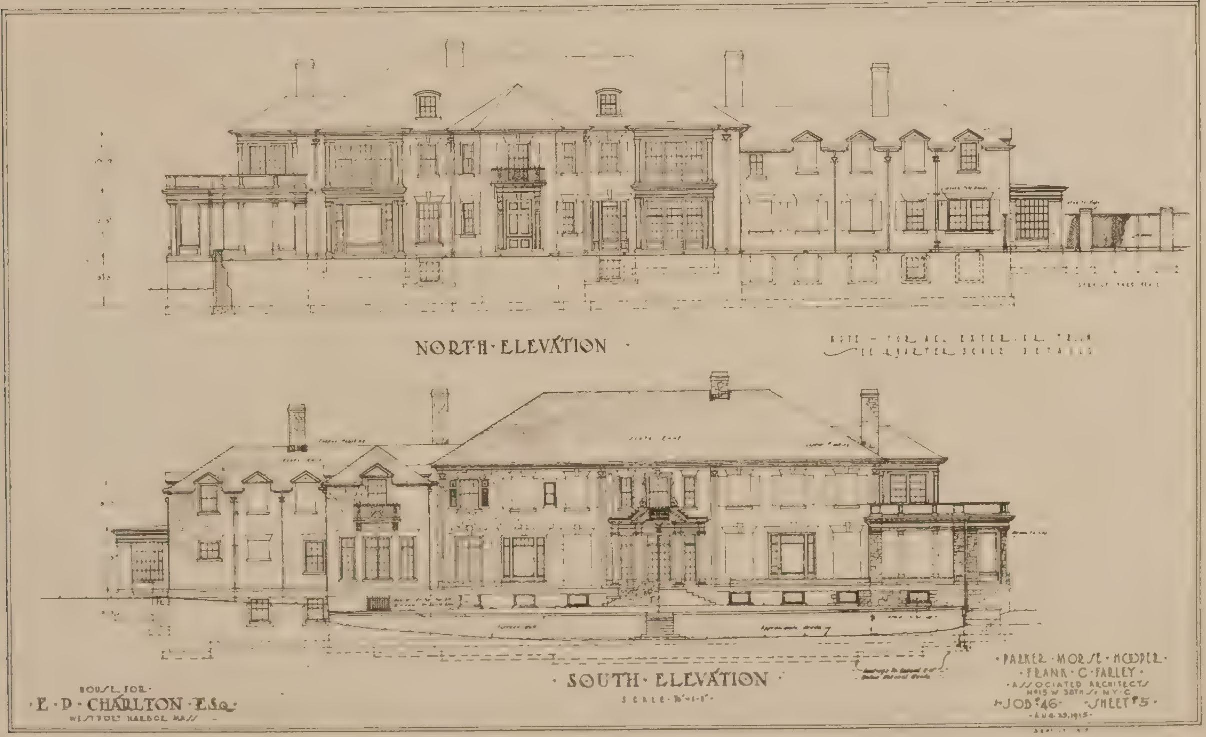
The furnishings and rugs are in green and old rose. Many palms and ferns in old Chinese jars give a touch of out-of-door informality to this interesting sun-room. At the right of the main hall is the large dining-room, and a panelled corridor with vaulted ceiling which leads to a small library, a locker-room, and the service end of the house. The dining-room is panelled in Italian walnut from floor to ceiling. The heavy cornice of the panelling conceals the indirect lighting, which at night illumines the dull gilded ceiling above. The furniture of this room is in the Italian style, and the decorations are carried out in tones of old gold and brown. The keynote of this color-scheme is taken from the unusually beautiful Convent Sienna marble of which the mantelpiece is made. Three large south windows in this dining-room look off over terraces and sloping lawns to the broad expanse of blue ocean, while a fourth door leads through a panelled alcove into a breakfast porch. A gray-green tile floor and gray-green painted lattice-work on walls and ceiling make a suitable setting for yellow painted furniture, window hangings, and gay flowering vines. This breakfast porch opens, as do all the other principal rooms on the first floor of the house, upon a broad stone terrace. From this terrace double steps lead down onto a formal semicircular terrace, laid out with box-bordered paths and hedges. An old Italian well-head makes a point of interest in the centre of this terrace, and a low fountain breaks the wall of the double steps leading up to the main house terrace.

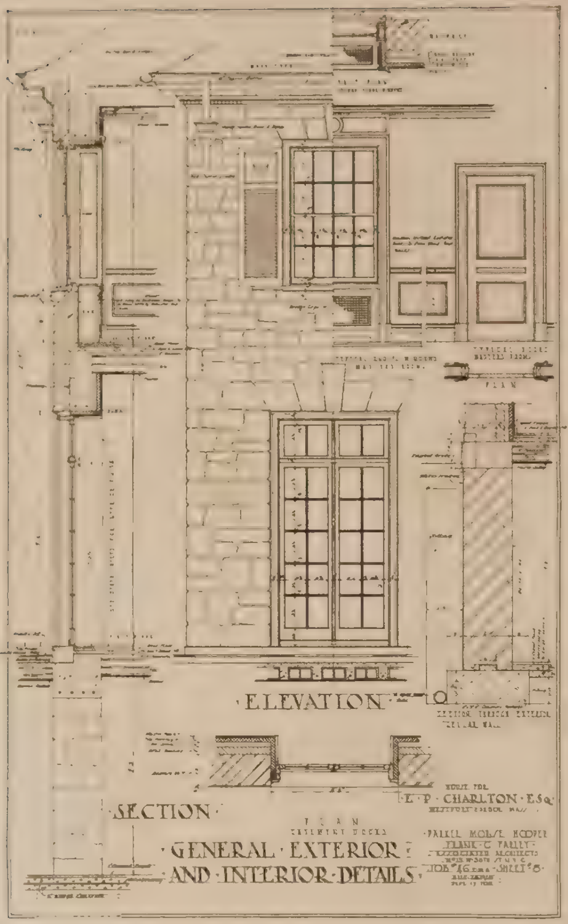
A broad English stairway leads up around the entrance bay of the house, to a long hall on the second floor. From this hall open out seven spacious bedroom suits, housekeeper's and linen rooms, and the servants' quarters in the low-ceiled second floor of the western wing of the house. The bedrooms are all panelled and painted and decorated in different harmonious color-schemes. Four rooms are furnished and decorated in one of the French, two in a simple modern English, and one in an adaptation of the Chinese style.

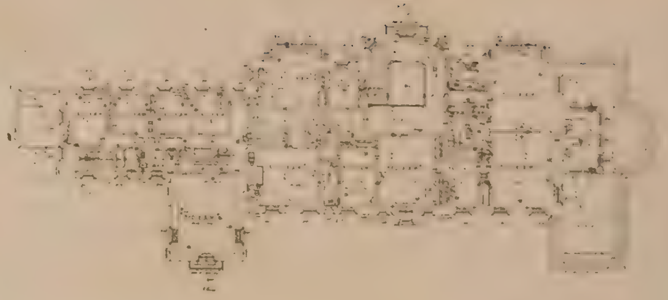
In the basement of the house, besides large laundry, service and heating accommodations, a panelled billiard-room and bowling-alley have been included.

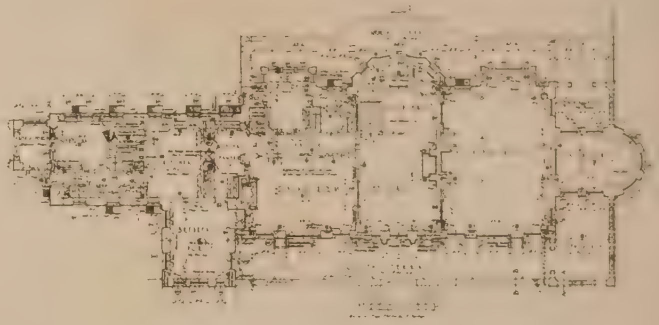
Among the many modern conveniences of the house might be mentioned a coal-lift, a clothes-chute, electrical washing and refrigeration machinery, thermostatic regulation of heat, intercommunicating telephones, wall and silver safes, and the latest type of sewerage disposal systems.


CROSS · SECTION
WEST · ELEVATION
EAST · ELEVATION
CROSS · SECTION · KITCHEN · WING


NORTH · ELEVATION
SOUTH · ELEVATION
HOUSE FOR
· E · D · CHARLTON · ESQ ·
WESTPORT HARBOR MASS
· PARKER · MORSE · HOOPER ·
· FRANK · C · FARLEY ·
· ASSOCIATED ARCHITECTS
NO 15 W 38TH ST N Y · C
· JOB No 46 · · SHEET No 5 ·
· AUG 23, 1915 ·







HOUSE FOR E P CHARLTON ESQ

FIRST · FLOOR · PLAN

Building Costs in England and France Are Relatively Higher than in the United States

In France the houses destroyed and damaged beyond ordinary repairs within the devastated area may be taken as the measure of the present shortage. This would approximate 410,000 homes. In Great Britain 450,000 would probably represent the actual need.

Prior to the war, a house which in Great Britain or France would have cost $2,000 would have footed up about $3,000 in the United States. As a result of the war, more radical advances have taken place in Europe than in America, and the present cost of building in both Great Britain and France is about three times the pre-war cost, while that in America is approximately double. This puts America on an approximate parity with these two countries, and the house above mentioned would cost practically $6,000 in all three countries.

In Great Britain practically all dwelling-houses, wherever situated, are of solid masonry construction—stone or brick—and, save in the cities, are without cellars or basements. There is no air-space for insulation against temperature and moisture, and the inside plastering is placed directly on the surface. The flooring is usually of brick, tile, or stone. The water-supply is generally limited to an outside tap. Even in the rather attractive Liverpool tenements, built by the municipality in 1885, there are no direct water or sewer connections, both being located in the hallways outside, and for the use of two to four families. Most of the workmen's tenements in Great Britain are without yard-space. The heating is from open fires, and the window-spaces are, in general, rather small.

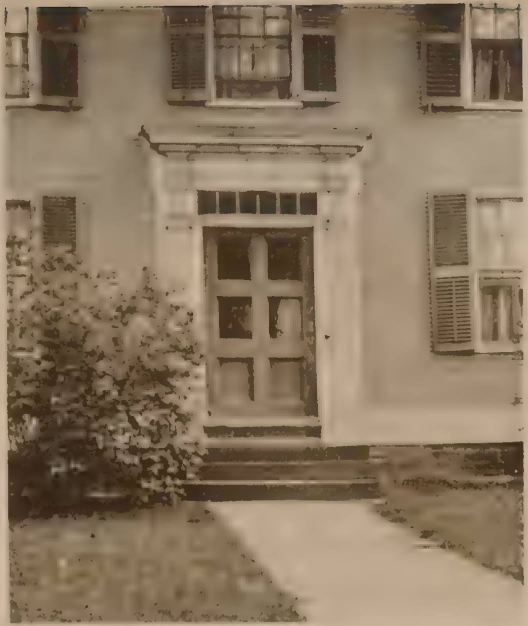
Paris to Replace Hovels of "Zoniers"

WHEN THE FORTIFICATIONS OF THE FRENCH CAPITAL ARE REMOVED DWELLINGS FOR WORKERS WILL BE BUILT BY THE GOVERNMENT

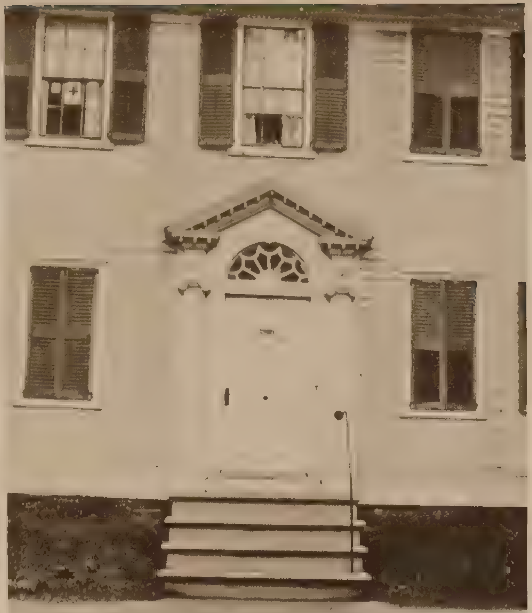
IN the world's building plans after the war the recognition of the relation of housing to morals as well as efficiency is being widely recognized, according to reports that have come into the U. S. Department of Labor. Included in the plan for the destruction of the fortifications of Paris is a scheme for the erection of modern dwellings for workers on a part of the ground which will remain in the possession of the city.

On the tract extending about half a mile beyond the fortifications small houses, many of them scarcely more than huts, have multiplied as a result of a government prohibition against the building of structures of any height or size lest such should become vantage points for possible foes. While some of the "zoniers" have erected neat cottages, the region has become the haunt of many criminals and miserable persons who live in mere hovels.

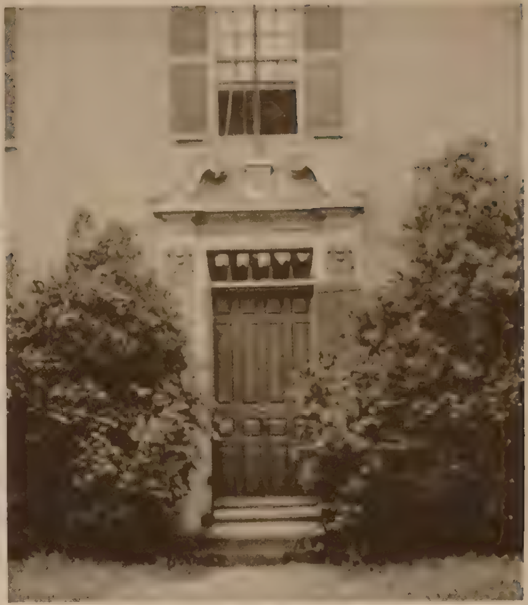
According to the new plan, now under consideration, rows of bungalows and attractive houses, as well as community buildings, are contemplated, and a boulevard to follow the line of the fortifications will be constructed.



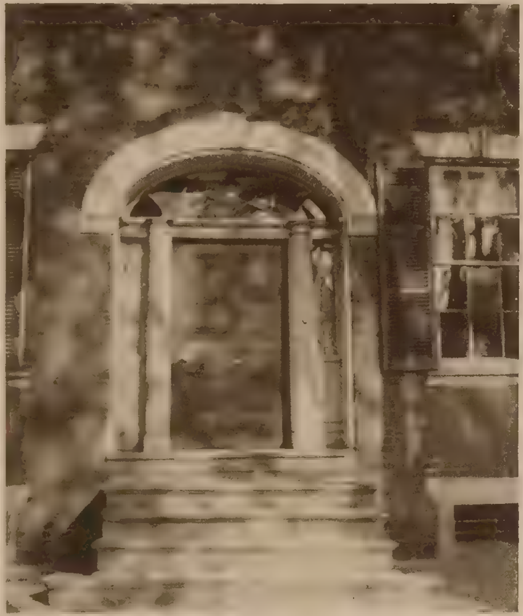
MADISON, CONN.



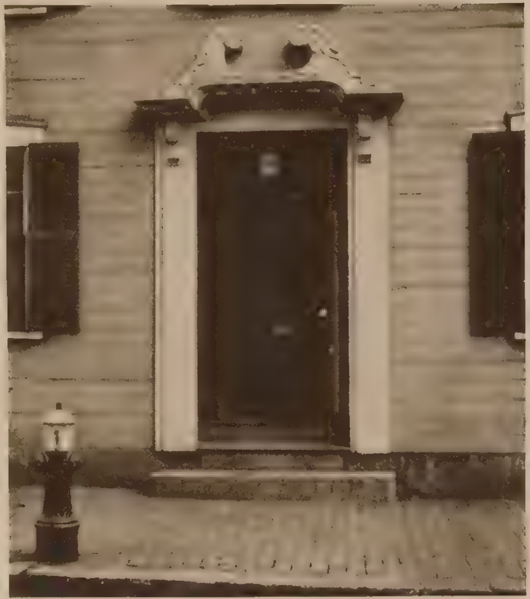
WARREN, R. I.



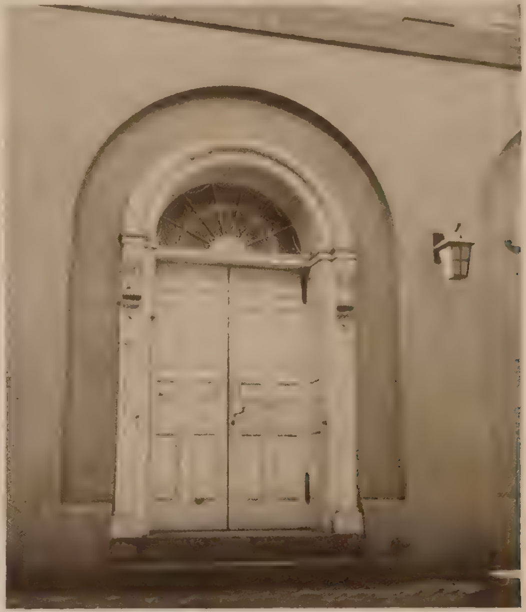
PORTSMOUTH, N. H.



FREDERICKSBURG, VA.



NEWBURYPORT, MASS.



FREDERICK, MD.

OLD COLONIAL DOORWAYS.

From the collection of Albert G. Robinson, Author of "Old New England Doorways."

Some Reasons for High Building Costs

IT is obvious that the current high cost of living is due to a general advance in the market price of probably every natural and manufactured product required by all of the human activities, and the failure of wages and income of large numbers of people to increase in the same ratio. The advance is most noticeable to the mass of the population in everything required for the three most necessary elements of existence, viz., food, clothing, and shelter. Inasmuch as architects are particularly interested in the production of the latter, I will confine my remarks to this element of living costs.

It does not seem to be appreciated that almost every article requires shelter of some kind for its production or storage before it is consumed, so that the increased cost of factories, warehouses, elevators, stores, etc., must enter in the cost of such products. Rent or interest for such buildings as well as taxes, up-keep, fuel, light, water, insurance, etc., etc., are large factors.

We who are better acquainted with the increases in cost which have taken place in buildings in the past few years will find these understandable and a fruitful subject for examination.

Many builders remember that good carpenters fitted and hung ten ordinary hardwood doors in eight hours when they were receiving thirty-five cents per hour in the early nineties; at the same time they mortised the lock, applied bolts and thresholds in one-half hour on each door, and some of the best carpenters would even hang as many as twelve to fourteen ordinary hardwood doors, with three cutts to each door, in a day.

The writer remembers that carpenters hung as many as eleven heavy flush veneered hardwood doors in eight hours in a large building he designed and supervised in the middle nineties. At the same time rough lumber was obtained at $15.00 per thousand, including the siding for frame buildings. Maple flooring, scraped slightly, was figured at $22.00 per thousand and oak flooring laid, scraped and sand papered, $30.00 per thousand. Those were fair figures which left the contractor a little gain on each item.

It is well within the recollection of builders in this city that it was customary for masons to lay two thousand and sometimes two thousand five hundred brick in a working day of ten hours; for cement finishers to finish two thousand square feet of floor in a day's work.

To-day we find that only about one-third of this amount of work is performed by the journeymen in eight hours. The decrease of work performed was gradual for a long time, but has grown more rapidly in the last ten years.

Carpenters' wages have advanced from thirty-five cents to eighty cents per hour, and it may be almost three times as great as the first figure when the current strike is settled. The wages of bricklayers, laborers, stone-cutters, etc., have not increased to as great an extent, but have almost doubled.

To-day, when none of the craftsmen will do as much work as they did at that time, the same amount of work is costing almost three times as much.

If everybody does not produce as much as they did when prices were lower than they are now, the cost of living will never approach the old level again. Large numbers of people cannot reduce their output without affecting themselves and all others, and it is obvious that the effect of shorter hours, which are demanded almost universally, and the reduction of work performed has reduced the total volume to such an extent that the demand has exceeded the supply and increased the cost.

In view of reduced production and higher wages of building mechanics, also the labor cost of preparing and transporting materials, which has increased in a similar ratio, the cost of shelter of the same quantity and quality has probably increased upward of 100 per cent in a few years.

Many people who are suffering the most, the laborer, mechanic, and other persons of small or moderate income who are raising the loudest objections, generally by striking for higher wages, do not seem to appreciate, or are not willing to admit, if they do appreciate it, that these very acts are, to a considerable extent, the cause of the constant rise in prices, affecting them as well as all other people.

Undoubtedly, profiteering in its generally accepted meaning is also a big factor, but it is afforded a secure screen by the actual increase in the cost of production.

The demands made by the state, in the form of excessive conveniences, in plumbing, lighting, and ventilation of workshops, largely due to lobbying labor and its biased representatives, supported by illogical requirements made by health officers, antiquated building ordinances, and other code requirements which were seemingly worded to protect a particular set of building material dealers or journeymen, also add to the cost of every building in order that the occupant may obtain a proper return and obviously are also large elements of higher costs.

It must be remembered that in addition to reduced production the economic effects of the war will stay with us, perhaps, for a long time, and that the cost of living cannot and will not recede until Europe is restored as a producer of food and all other forms of wealth.

Richard E. Schmidt, F. A. I. A.

From "Bulletin of Illinois Society of Architects."

Announcements

The Aberthaw Construction Company, of Boston, Mass., have recently opened a permanent office in Buffalo, N. Y., at 918 Ellicott Square. As the builders of the Turbine Plant of the Bethlehem Shipbuilding Corporation at Buffalo, and other work, the company has for some time been represented in this city and this fact is one of the reasons for the opening of a permanent office. Mr. H. C. Heddinger, who has been with the Aberthaw organization for some time, will be in charge.

Mr. Joseph Della Valle and Mr. Toby Vece, architects, announce the opening of their offices at 865 Chapel Street, New Haven, Conn. Manufacturers' catalogues and samples are requested.

William Lyon Somerville, architect, formerly partner in the firm of Murphy & Dana, of New York City, wishes to announce the opening of his office in the Imperial Bank Building, corner of Yonge and Bloor streets, Toronto.

The Dawn of the American Renaissance

By David Varon

THIS age is proclaimed by many, and not without good reasons, the greatest period of history. Think of it. Mankind undertook, and carried its enterprise to success, the clipping of the talons of the German Eagle. It has thereby made the world safe for democracy. The same mankind undertook things never dreamed before—except by the illustrious Da Vinci—air ventures, the crossing of continents and oceans on flying-machines. Our country and England are first to be covered with the glory of such feats.

By proclaiming this age the greatest of history it is virtually the eulogy of science that is sung by every enthusiast. No one can blame them. Everybody should grow enthusiastic about these great achievements of our fellow beings. But while the great public raves about the flying across because he practically sees it, he is unable to rejoice over some event of equal importance, and that is the advent of the American Renaissance.

It requires very little foresight to see it dawn, nor is it necessary to resort, in order to announce its advent, to dreams or miracles. For we can read its coming through the light of history. It is enough that we believe in the continuous ascendancy of man, ever since he came on the planet. The present readjustment may take a few years, when most of the horrors will be forgotten and life will resume its natural run onward.

Some people are inclined to believe that on account of the horrors of the great world war art will be side-tracked for many years to come. Now, it has been demonstrated on the contrary that art, and great art especially, lives on war, or rather, always on strong emotional events, such as heroic actions. Far from killing it, war always nourished it. On one hand we find the influence of the art of the invaded country on the conqueror who, upon his return home, feels eager to surround himself with more imposing apparel. On the other hand, every great war was an occasion for kindling anew the feeling of patriotism. (Though it might sometimes be termed hatred. I have no doubt but within a few years we shall see in every nook of Germany a number of monuments the aim of which will be the strengthening of the national aspirations, or feeding the popular hatred, and thereby preparing for revenge.) What contributed mostly to give France so many great works of architecture and sculpture if not the great struggles she had to sustain against all the beleaguered nations?

Appalling as the number of dead in this war may seem, yet in comparison with the population of the present day it is probably less than the havoc wrought by plagues in times gone by. Labor troubles have existed ever since unskilled people worked under the leadership of clever ones. We find them recorded in the history of Rome, when the plebeians rebelled against the patricians, and during the Jaquerie in the fifteenth century, etc. Things were readjusted, thanks to the energy of the leaders and also to time, the great healer.

In the meanwhile, art kept always alive though with varying fortune. Then, the natural inference to be drawn from this would be that if the flourishing of art is in direct ratio to the intensity of the forces giving it birth, we may well expect a splendid crop out of these present events.

Once we are ushered into this period of creative art, what shall its tendency be? It is hard, and it would be preposterous, to foresee it, otherwise art would not be itself, for as a rule it is an expression of the period. But we may foresee a Renaissance, that is, at least in the sense that the whole nation will have reconquered itself from the keen materialism into which it was thrown by the very doing its share in making democracy a reality, that is, helping the many to at least exist materially as did formerly the few. Now the time has come when the masses are no longer satisfied with merely existing. The soul of a working man as well as that of the aristocrat has cravings which must be attended to, a thirst for the beautiful that must be quenched.

We could hasten the coming of the new era and we also could retard it. The latter is the easiest thing; just to let things go as they are, that is, allowing the minds to consider the means as the end, and let the bulk of the population work merely for material pursuits, limiting thereby their life's enjoyment to the material. It is doubtful that such a trend of mind would do much to help the creating of lasting works of art. On the other hand, we can surely quicken the coming of the new era by stimulating the patriotism of the coming generation. We have all reasons to be proud of the achievements of our country in the last decade, especially in the latter years. The magnificent self-denial with which our heroes faced steel and fire ought to be recorded in memorials worthy of the deeds.

In this connection, I would say that though many of these memorials ought to be practical, useful, yet a good many of them should be solely devoted to one single purpose, that of commemorating the idea of self-sacrifice. There is a limit to everything, even to the sense of practicality. The men who fell on the battle-field did so without expecting any reward except the spiritual joy of having done their duty. Likewise the monuments representative of these heroic actions could and should be in many instances erected in the only thought of commemorating their splendid achievements. Of course, there are examples in several countries in which the memorials assume very pleasing shapes, such as public fountains, decorative monuments in parks, etc., and there is no reason why we should not imitate the same method here. In fact, if there is one way of fighting the evils inherent to modern Babylons, it seems it would be by the scattering on most of our public places such beautiful and commemorative works of art. So far, if one walks down Broadway early in the morning there is only one thing which gives him a sense of art, or rather a warning against being too deeply merged in materialism, and that is the little chime of Trinity Church, as well as the several tombstones to be seen in its yard.

This Renaissance whose birth may be traced to the immortal battle of Verdun, is being nursed at the American University near Paris. What more intimate contact between two sister republics could be imagined? There is nothing more touching than this picture of the American and French youths who fought side by side for the same cause, exchanging their ideas practically on the battle-field. The amount of benefit which is to accrue to both is immeasurable. While French will inject more practicality in their splendid power for theory, America is to increase her enthusiasm for new ideals.

I can see nature herself at work even at home preparing for this great event, when I consider the number of talents

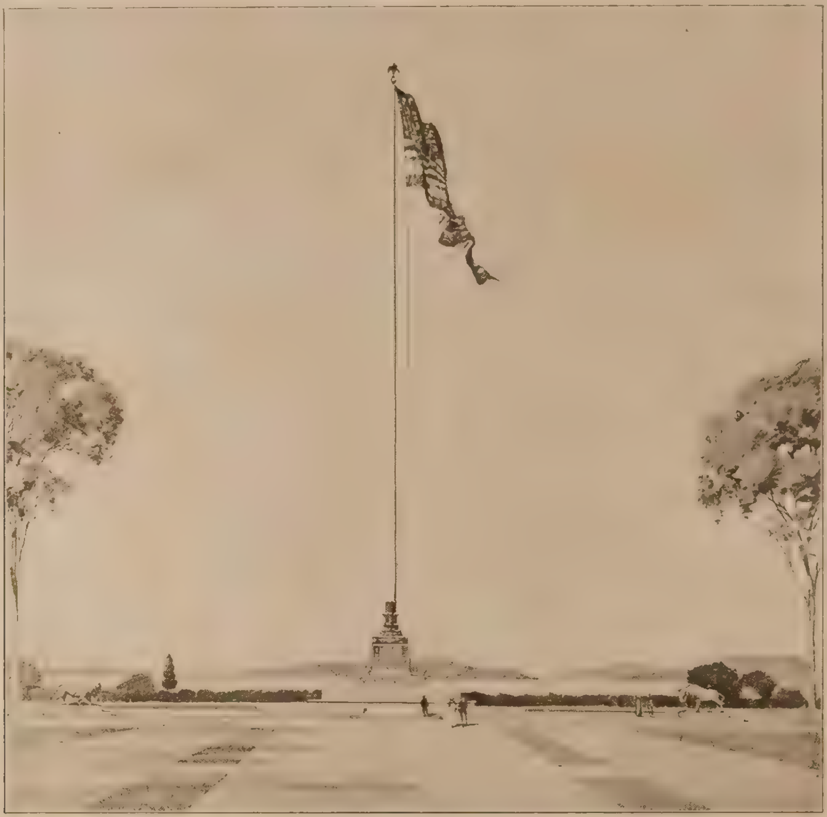
(*Continued on page 292*)

The Plans for the Great Roosevelt Memorial Park

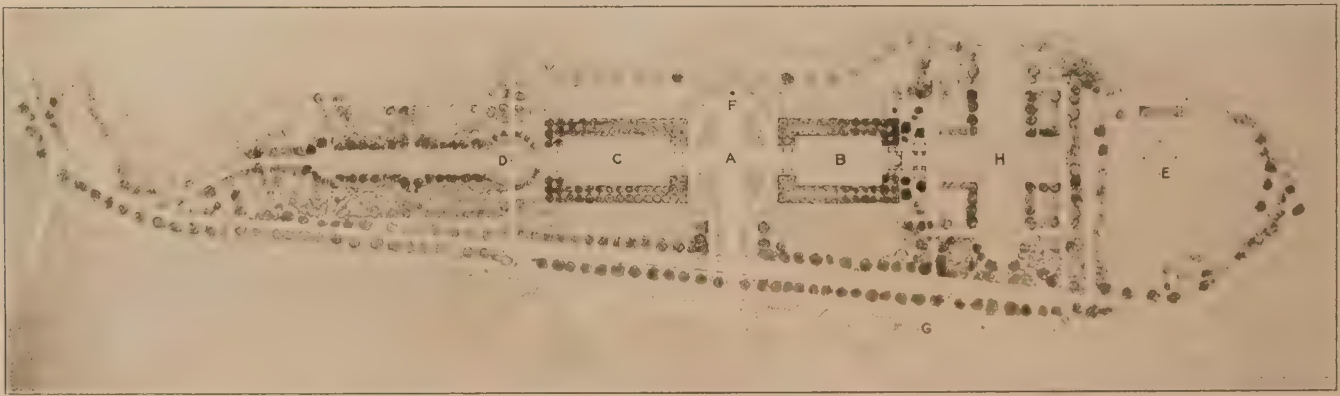
At his Home Town, Oyster Bay, N. Y.

Electus D. Litchfield and Rogers, Architects James L. Greenleaf, Consulting Landscape Architect

IN his lifetime Colonel Roosevelt loved it all, its woods and fields, the shores of Long Island Sound, the flowers and the birds. He loved the outdoor life and he wanted others to love and share and benefit by it. During his lifetime, in fact, he endeavored to obtain an outdoor park for his friends and neighbors at Oyster Bay, and with his passing, a wider significance will be given to this cherished aim of his. The creation of this park, as one phase of a general memorial project, will give his fellow citizens opportunity for rest and recreation and upbuilding of mind and body; and ultimately will perhaps include his estate of Sagamore Hill, which will be preserved like Mount Vernon and Mr. Lincoln's home at Springfield.

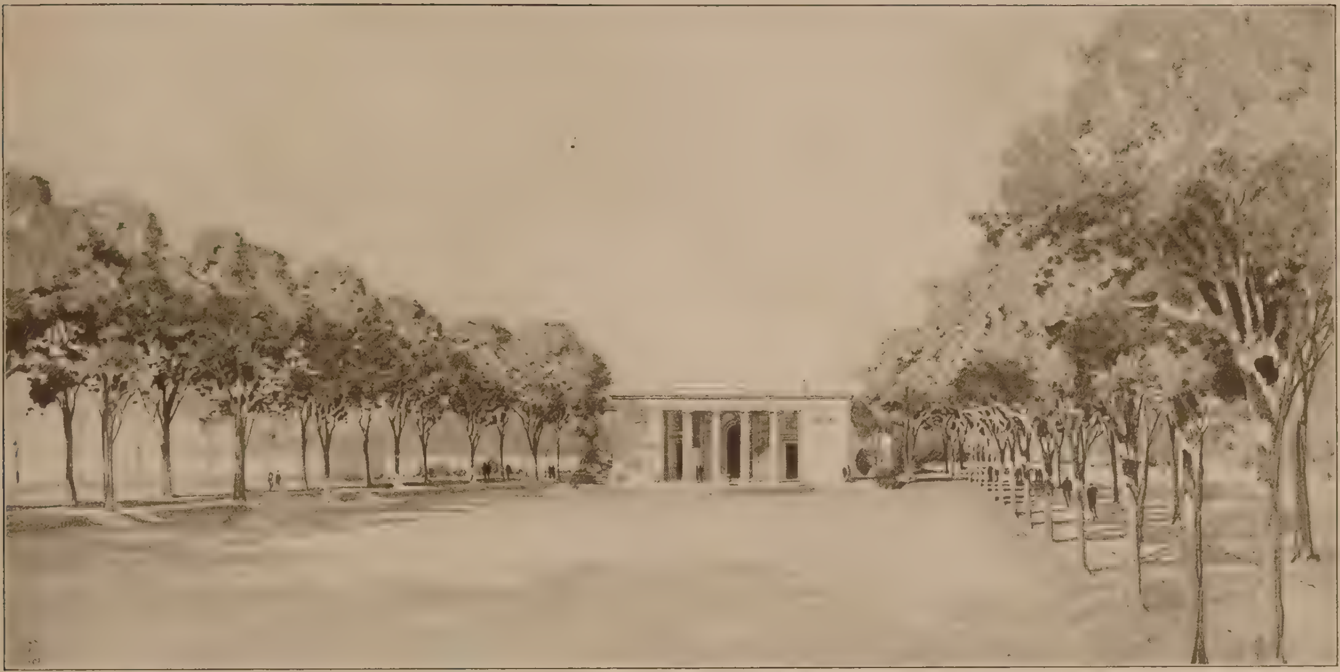


On the axis of the main approach, standing out in firm silhouette against the background of the bay and the distant hills of Centre Island, should be a great flagpole with a monumental base, which will be forever reminiscent of the Colonel's intense love for the American flag.

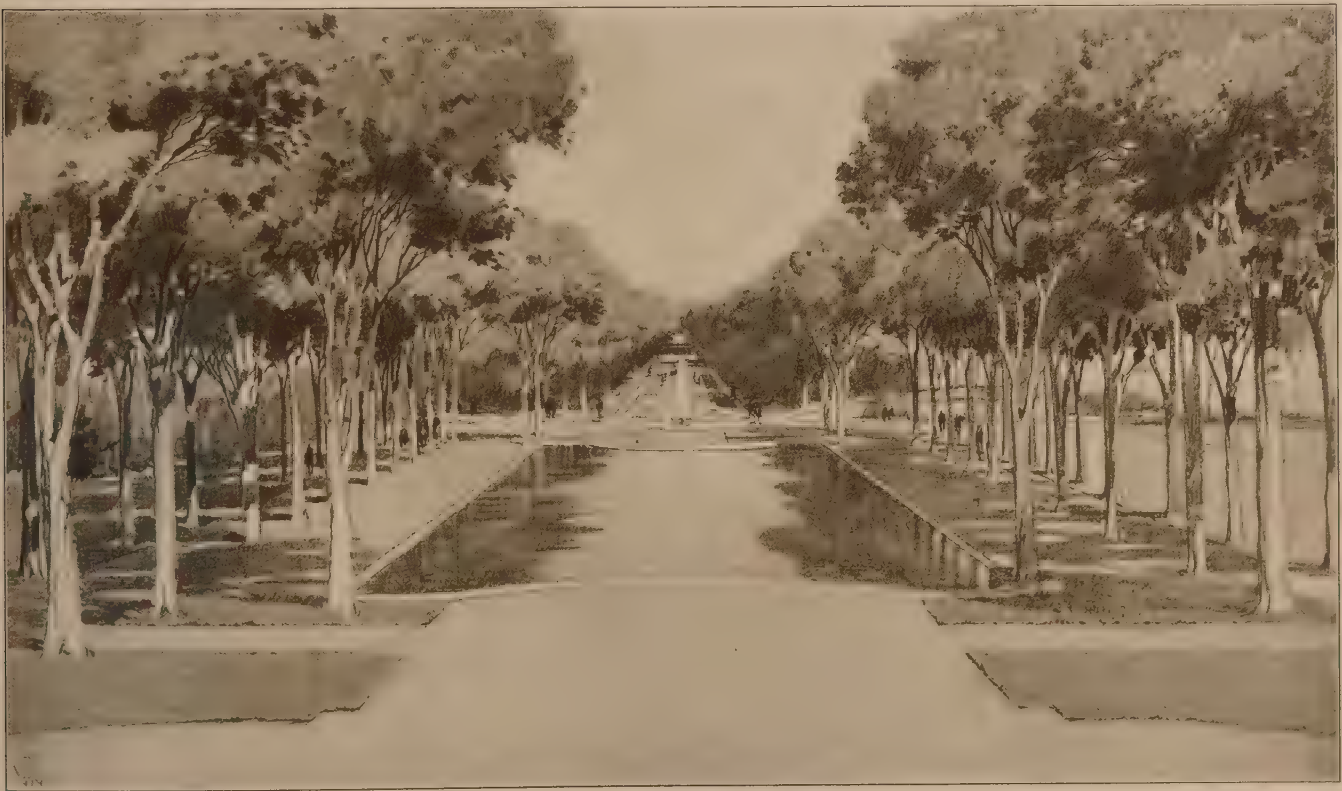


A. Central plaza. B. Outdoor auditorium. C. Pool. D. Fountain. E. Baseball ground and tennis courts. F. Flagpole. G. Railroad station. H. Boat slip and landings.

The site for this memorial has an outlook of great beauty. It may be developed in either a naturalistic or formal manner or there may be a combination of the two. It is important to stress considerably the formal theory of its composition if we are to obtain not only the greatest beauty but a distinctly memorial feeling in the design. Other things being equal, the best things in art are invariably the simplest, and the plans here shown embody but few main elements.



Aside from the playground and amusement space, which is separated from the rest of the composition by the existing canal, which should be improved and beautified, the scheme consists of an outdoor auditorium, the walls being formed by a double colonnade of high-foliaged elms, between whose trunks one may look out upon the bay and toward Sagamore Hill, and whose foliage will cast beautiful shadows upon the green lawn carpet.



The architects have calculated on the use of tall trunked elms for much of the formal part of the composition. At the end of the lagoon there may well be an interesting fountain and beyond it a long approach from the west between thickly planted native American shrubs and low-growing trees, laurel, wild honeysuckle, dogwood, beech, and ash forming a dense dark foliage in brilliant contrast to the gravel walks, the reflection of the sky in the lagoons, and the bright deep blue of the bay itself.

(Continued from page 289)

one comes across in our public and high schools. Is it merely to respond to our commercialism and the demands of our industry? No doubt both are entitled to this touch of beauty. Still, who knows but these talents might be unwittingly stifled through improper guidance? Youths, while sometimes self-asserting, often rely on the guidance of their seniors. Oh, what a loss to our art should we fail to use their potentiality.

In what way should we direct the rising generation, so as to get the most of the promising twentieth century? I am satisfied to see men like our State Commissioner of Education, Dr. John H. Finley, return from France so enthusiastic, so full of admiration for the French soul. During his investigation there he found the very roots of that splendid French courage, endurance, and unshakable faith in the school. There too he found the roots of beauty, represented in every subject and more especially by the very handwriting of the lovely French compositions and designs of the children. He took pleasure in sending broadcast a copy of an original composition referring to the war, written by a young girl in her second year in high school, so full of genuine, simple, pure poetry. What may we not expect from our school population when men of this caliber give it its direction. Poetry and talent are here latent in almost any child. It only awaits the spiritual spark to be kindled.

Here we only have to look for some great events to record fittingly. Is it only on the battle-field that we showed ourselves great. What about our other achievements in the realms of science and industry? What of America first crossing the ocean in a seaplane? Should such deeds be belittled? We have all reasons to believe that our leaders in education as well as our statesmen will find in all these records good material for stimulating American patriotism, letters, and arts. We have good reason for being proud of our government, our constitution. Let us give our enthusiasm and gratitude some external form. Let art take care of this. Our poets, our painters, sculptors, and architects will fulfil their duty as did the men in the trenches.

What form may we expect this Renaissance to assume in architecture? Shall it be merely a changing of the elements of present or past architecture, altering here, distorting there, or shall it have its characteristic features? At first thought it looks as though to great deeds, imposing by their hugeness, ought to correspond equally huge works of art, conceived in great units, erected with materials both natural and artificial. In this respect it seems that the Brooklyn Bridge foreran our epoch by spanning, as it were, two continents, and it is no surprise that to-day it should still constitute one of the wonders of the world. But greatness does not necessarily call for hugeness. Great were August's triumphs, yet a Triumphal Arch or a commemorative column was sufficient to record his victories. Rather this Renaissance is to find great inspiration in the work of reconstruction of France. Here is, I think, its main fountain. Here the true spirit of the most fertile epochs in art is born again. In all lines it is realized that if reconstruction is to take place, in a dignified manner to fit the need in spite of the high cost of labor and materials, and considering the pressure of time, then beauty must consist merely in perfection in proportion, be it in architecture or in furniture, of simple harmony in mass, shape, line, and color. This is what is looked after for the great bulk of the huge task the French architectural profession sees ahead. And, as it may be expected, many of our citizens will take advantage of this opportunity to work under the guidance of the French artists. From these teachings, dealing, as a matter of course, with fundamental principles, we may expect great results concerning part of our work of reconstruction. Thanks to the endeavors of our sister republic, we shall have learned to solve our art problems without the borrowing of a foreign formula. The difference between the French Renaissance and the American will be found in the fact that while France got her inspiration from the politically invaded Italy, she will have given ours through the fraternizing of her boys with ours.

The Perfect Dwelling

By Robert Thomson

I WISH to summarize some of the vital requirements which must be met in a dwelling in order to insure perfect health conditions for its occupants:

(1) That in order to maintain the atmosphere of an apartment in a condition which is in all respects fit for human use it is essential that there be a continuous inflow of 3,000 cubic feet of pure, fresh air, and a corresponding outflow of vitiated air, per hour for each adult occupant or his equivalent.

(2) That when either oil or gas is used for lighting purposes fumes are given off which vitiate the air contents of the apartment so seriously that it is essential to take into account this source of pollution, as well as that due to the occupants, when calculating the total volume of the air supply required in a dwelling.

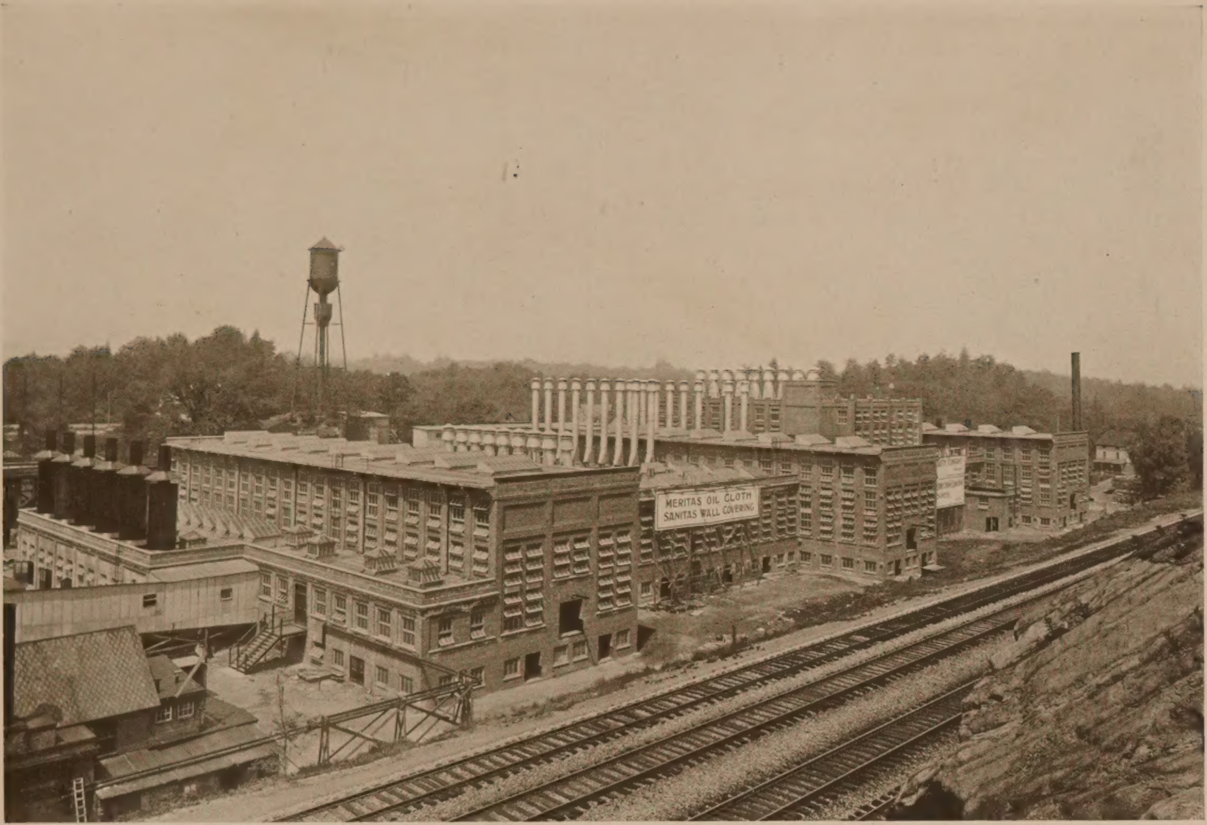
(3) That the extent to which the atmosphere of an apartment is vitiated by either an ordinary paraffin-oil lamp of 16 candle-power, a batswing gas-burner of similar lighting power, or a gas-burner fitted with a Welsbach mantle is equivalent to that caused by 7½, 5, and 3 adults respectively.

(4) That unless the incoming air be warmed before admission, the air contents of a sitting-room cannot in cold weather be renewed oftener than about three times an hour without discomfort to the occupants, and that, therefore, it is necessary to provide in such apartments a minimum of 1,000 cubic feet of air space for each adult occupant or his equivalent.

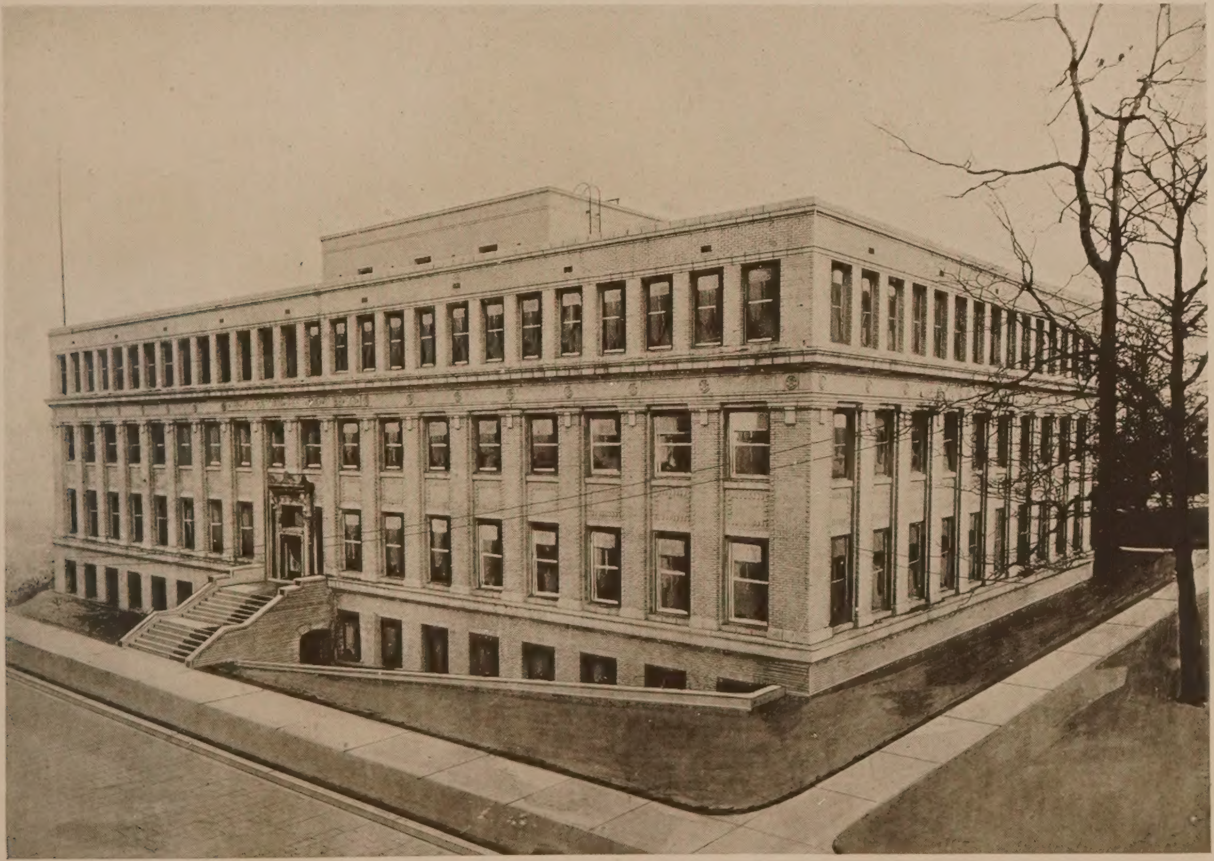
(5) That if the incoming air supply be suitably warmed before admission the air contents of a sitting-room can be renewed from five to six times an hour without creating discomfort, and that, therefore, a perfect supply of air would be provided for a correspondingly greater number of occupants.

By establishing these scientific facts on that scientific basis scientists have provided the much-needed scientific

(Continued on page 294)



STANDARD OIL CLOTH CO., BUCHANAN, N. Y. H. Lansing Quick, Architect. Stone & Webster, Engineers.



OFFICE BUILDING, YOUNGSTOWN SHEET & TUBE CO., YOUNGSTOWN, O. Designed and built by Stone & Webster.

(Continued from page 292)

standard by which to determine either (*a*) the sizes of the habitable apartments in any proposed dwelling in which it is desired to provide perfect health conditions for a stated number of occupants or (*b*) the number of occupants which each of the apartments in any dwelling will accommodate under similar conditions, and it is obvious that it can be used with equal facility for any required modification of these conditions.

Had the dwellings of our people been constructed in accordance with the foregoing standard even as recently as fifty years ago, and had the maximum permissible number of occupants in each dwelling been thereafter regulated in conformity therewith, neither the sacrifice of 250,000, or any other number of lives a year, nor the appalling amount of ill health, sorrow, and misery which is inevitable with the existing atrociously planned type of dwellings in which our working classes are forced to use their small, disease-promoting kitchen as their living-room would have been disgracing the civilization of to-day.

That it is economically possible to provide healthy housing, in which the air supply in every respect fully conforms to that scientific standard, is conclusively proved by the accompanying series of plans, showing dwellings of the hitherto unknown actively health-promoting class in which every requirement in regard to health, house-room, office accommodation, comfort, convenience, and economy is fully met.

From "The Building News," London.

Used for Porches, Pergolas and Interior Use

Catalogue B-40 contains very useful information about Exterior and Interior Columns; will be sent to those who want it for 10c in stamps.

HARTMANN-SANDERS CO.
2155-2187 Elston Ave., Chicago
New York Office, 6 East 39th Street

NOTE—We have unexcelled facilities for the manufacture of special porch materials to architect's details. Send us your list and plans for estimates.

St. Paul Athletic Club St. Paul, Minn.

The hollow metal doors and trim

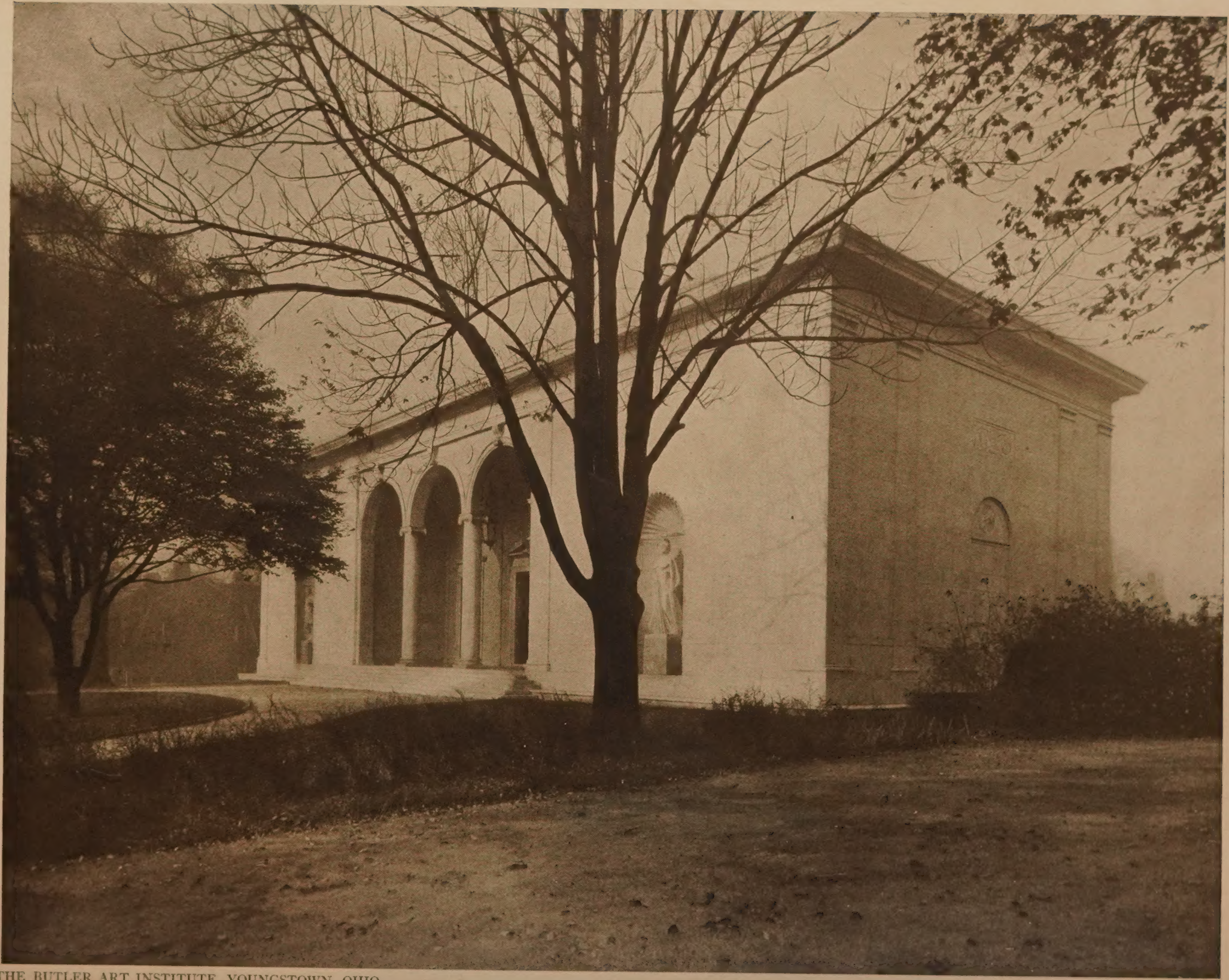
in the building of

The St. Paul Athletic Club

were supplied by

Interior Metal Manufacturing Company

Jamestown New York



THE BUTLER ART INSTITUTE, YOUNGSTOWN, OHIO.

McKim, Mead & White, Architects.